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Oceans and the law of the sea

Oceans and the law of the sea

Report of the Secretary-General**

Summary

The present report has been prepared in compliance with the request made by the General Assembly in paragraph 148 of its resolution 62/215 that the Secretary-General submit to the Assembly at its sixty-third session a comprehensive report on developments and issues relating to ocean affairs and the law of the sea. It is also submitted to States parties to the United Nations Convention on the Law of the Sea, pursuant to article 319 of the Convention, to be considered by the Meeting of States Parties under the agenda item entitled "Report of the Secretary-General under article 319 for the information of States parties on issues of a general nature, relevant to States parties, that have arisen with respect to the United Nations Convention on the Law of the Sea". It will furthermore serve as a basis for discussion at the ninth meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea.

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* A/63/50.

** Owing to the page limit, this report contains a mere summary of the most important recent developments and selected parts of contributions by relevant agencies, programmes and bodies.

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Abbreviations

ACCOBAMS	Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Areas
ASCOBANS	Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas
ASEAN	Association of Southeast Asian Nations
EEZ	Exclusive Economic Zone
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
HELCOM	Baltic Marine Environment Protection Commission
IAEA	International Atomic Energy Agency
ICRI	International Coral Reef Initiative
ILO	International Labour Organization
IMO	International Maritime Organization
INTERPOL	International Criminal Police Organization
IOC	Intergovernmental Oceanographic Commission of UNESCO
ISPS Code	International Ship and Port Facility Security Code
IUU fishing	Illegal, unreported and unregulated fishing
MARPOL	International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto
MOU	Memorandum of understanding
MOWCA	Maritime Organization for West and Central Africa
MPAs	Marine protected areas
MEPC	IMO Marine Environment Protection Committee
MSC	IMO Maritime Safety Committee
OSPAR	Commission for the Protection of the Marine Environment of the North-East Atlantic
PSSA	Particularly sensitive sea area
RFMO/A	Regional fisheries management organization and arrangement
SAR	International Convention on Maritime Search and Rescue
SOLAS	International Convention for the Safety of Life at Sea
SUA Convention	Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation
SUA Protocol	Protocol for the Suppression of Unlawful Acts against the Safety of Fixed Platforms Located on the Continental Shelf

UNCLOS	**United Nations Convention on the Law of the Sea**
UNEP	**United Nations Environment Programme**
UNESCO	**United Nations Educational, Scientific and Cultural Organization**
UNHCR	**Office of the United Nations High Commissioner for Refugees**
UNIDO	**United Nations Industrial Development Organization**
VME	**Vulnerable marine ecosystem**
WMO	**World Meteorological Organization**

I. Introduction

1. General Assembly resolutions 62/177 on sustainable fisheries and 62/215 on oceans and the law of the sea, adopted on 18 and 22 December 2007, respectively, cover a broad range of ocean issues and attest to the ever-increasing importance of the role of the General Assembly as the global institution having the competence to undertake an annual review and evaluation of the implementation of UNCLOS and other developments relating to ocean affairs and the law of the sea; a task the Assembly first set for itself in resolution 49/28. The annual comprehensive report of the Secretary-General on oceans and the law of the sea constitutes the basis for the review by the General Assembly, as well as any other reports it may request. The General Assembly has also established two processes to assist it with some aspects of its important task.

2. Since 1999, the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea ("the Consultative Process") established by resolution 54/33, facilitates the General Assembly's annual review of developments in ocean affairs and the law of the sea, by considering the report of the Secretary-General and by suggesting particular issues to be considered by the Assembly, with an emphasis on identifying areas where coordination and cooperation at the intergovernmental and inter-agency levels should be enhanced. The Consultative Process will hold its ninth meeting from 23 to 27 June 2008 and will focus its discussions on the topic "Maritime security and safety". The present report will constitute the basis for the discussions at the meeting and therefore contains an expanded chapter on that topic.

3. In 2004, the General Assembly established an Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction ("the General Assembly Working Group") in accordance with resolution 59/24. That Group met in 2006 and will, pursuant to resolution 62/215, hold another meeting from 28 April to 2 May 2008 to discuss the issues identified in paragraph 91 of resolution 61/222. The Secretary-General has prepared a report to assist in the preparation of the agenda (A/62/66/Add.2).

4. The outcomes of the meetings of the Consultative Process and the Working Group will be presented to the General Assembly at its sixty-third session. Information on the outcomes of the eighteenth Meeting of States Parties to the Convention, to be held from 13 to 20 June 2008; the informal consultations of States Parties to the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (the "United Nations Fish Stocks Agreement"), held from 11 to 12 March 2008; and the work of the Commission on the Limits of the Continental Shelf ("the Commission") at its twenty-first session, held from 17 March to 18 April 2008, will also be made available to the General Assembly through an addendum to the present report, together with information on developments that have taken place in other forums since the preparation of the report.

5. Reflecting these and other relevant developments that the General Assembly may consider appropriate in its annual resolutions on oceans and the law of the sea, while avoiding expanding the length of these resolutions, is becoming a challenge.

Different approaches could be considered in that regard, including streamlining the current texts of the resolutions and focusing future annual resolutions only on those policy issues that have arisen between annual sessions and which require the immediate attention of the international community.

II. The United Nations Convention on the Law of the Sea and its implementing Agreements

A. Status of the Convention and its implementing Agreements

6. As at 1 March 2008, no new instruments of ratification or accession to UNCLOS had been deposited since May 2007. The number of parties therefore remains at 155, including the European Community. The number of parties to the Agreement relating to the implementation of Part XI of the United Nations Convention on the Law of the Sea (the "Part XI Agreement") increased to 131, following the deposit of the instruments of ratification by Uruguay and Brazil on 7 August and 25 October 2007, respectively. Following the ratification by the Republic of Korea on 1 February 2008, the number of parties to the United Nations Fish Stocks Agreement rose to 68, including the European Community.

B. Declarations and statements under articles 287, 298 and 310 of the Convention and article 43 of the 1995 United Nations Fish Stocks Agreement

7. On 17 October 2007, Trinidad and Tobago made a declaration under article 287 of UNCLOS, in which it stated that "in the absence of or failing any other peaceful means, Trinidad and Tobago chooses the following means in order of priority for the settlement of disputes concerning the interpretation or application of UNCLOS: (a) the International Tribunal for the Law of the Sea established in accordance with Annex VI; (b) the International Court of Justice".

8. Regarding the United Nations Fish Stocks Agreement, Latvia and the Czech Republic declared, on 12 April and 12 September 2007, respectively, that they had transferred, as member States of the European Community, their competence for certain matters governed by the Agreement to the European Community. Both States also confirmed the interpretative declarations of 19 December 2003 made by the European Community upon ratification of the Agreement.[1]

9. On 9 January 2008, Austria nominated Gerhard Hafner, Gerhard Loibl, Helmut Tichy and Helmut Türk as conciliators and arbitrators under article 2 of annex V, and article 2 of annex VII to the Convention.

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[1] See "Multilateral Treaties Deposited with the Secretary-General", at http://untreaty.un.org/ENGLISH/bible/englishinternetbible/partI/chapterXXI/treaty9.asp#Declarations.

C. Meeting of States Parties

10. A Special Meeting of States Parties to UNCLOS was held at Headquarters on 30 January 2008, to elect one member of the International Tribunal for the Law of the Sea (the "Tribunal") to fill the vacancy resulting from the resignation of Judge Guangjian Xu (China) on 15 August 2007. The Special Meeting elected Gao Zhiguo (China) as member of the Tribunal for the remainder of the term, which ends on 30 September 2011 (see SPLOS/170).

III. Maritime space

A. Overview of recent developments regarding State practice, maritime claims and the delimitation of maritime zones

11. *Caribbean Sea.* By a note verbale, dated 23 October 2007, the Dominican Republic transmitted to the Secretary-General Act 66-07 of 22 May 2007, which declares the Dominican Republic an archipelagic State and contains the lists of geographical coordinates of points for the archipelagic baselines and the outer limits of the exclusive economic zone (EEZ) of the Dominican Republic (see www.un.org/Depts/los, and *Law of the Sea Bulletin No. 65*).

12. *Gulf of Guinea.* The Cameroon-Nigeria Mixed Commission, established pursuant to the Joint Communiqué of 15 November 2002, held its twentieth Ordinary Meeting in Abuja on 15 and 16 November 2007. It examined and adopted the reports of the meetings of the Working Group on the Maritime Boundary, namely, the extraordinary meeting, held in Yaoundé, on 23 and 24 August 2007, and the eleventh meeting, held in Abuja, on 14 November 2007. It decided that the United Nations experts assisting the Commission should take as a reference point various existing maps in the WGS84 Datum, transposing the computation results relating to the loxodromic coordinates on those maps and present them to the Working Group on the Maritime Boundary so that the Group could adopt the map that shows the least error.[2]

13. *Pacific Ocean.* By a note verbale, dated 14 August 2007, Peru transmitted to the Secretariat "Supreme Decree No. 047-2007/RE of 12 August 2007, denoting the outer limit (southern sector) of the maritime dominion of Peru, drawn in accordance with articles 4 and 5 of Law No. 28621 and with international law" (ibid.).

14. On 10 September 2007, Chile addressed to the Division for Ocean Affairs and the Law of the Sea of the Secretariat (the "Division") a note verbale concerning the publication on the website of the Division, of the Supreme Decree No. 047-2007/RE issued by Peru, in which Chile expressed its "disagreement with the utilization by Peru of this website to disseminate positions contrary to the maritime delimitation treaties in force with Chile" (ibid.) (see also paras. 367-369 below).

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[2] Communiqué adopted at the twentieth meeting of the Cameroon-Nigeria Mixed Commission, available from www.un.org/unowa/cnmc/preleas/20thm.htm.

B. Deposit and due publicity

15. On 7 December 2007, Fiji deposited with the Secretary-General, in accordance with article 16, paragraph 2; article 47, paragraph 9; and article 75, paragraph 2, of UNCLOS, lists of geographical coordinates of points, as contained in the Marine Spaces (Territorial Seas) (Rotuma and Its Dependencies) Order, and in the first and second schedules annexed to the Marine Spaces (Archipelagic Baselines and Exclusive Economic Zone) Order (see www.un.org/Depts/los/LEGISLATIONANDTREATIES/depositpublicity.htm).

IV. Bodies established by the United Nations Convention on the Law of the Sea

16. The present chapter sets forth recent developments relating to the Tribunal and the Commission. As the fourteenth session of the International Seabed Authority is scheduled to be held from 26 May to 6 June 2008, relevant developments relating to the work of the Authority will be presented in the addendum to the present report.

A. International Tribunal for the Law of the Sea

17. The Tribunal held its twenty-third session from 5 to 16 March 2007 and its twenty-fourth session from 17 to 28 September 2007. The two sessions were devoted to legal matters having a bearing on the judicial work of the Tribunal and other organizational and administrative matters, including a review of the Rules and judicial procedures (see also para. 371 below). The Tribunal established a new Chamber for Maritime Delimitation Disputes, in accordance with article 15, paragraph 1, of its Statute. It also re-elected Mr. Doo-young Kim (Republic of Korea), as Deputy Registrar for a further term of five years.

18. The Headquarters Agreement between the Tribunal and the Government of the Federal Republic of Germany entered into force on 1 May 2007. By an exchange of letters, dated 29 March and 12 April 2007, an administrative arrangement on cooperation was concluded between the Registry of the Tribunal and FAO.

19. The Tribunal continues to carry out its series of workshops on the settlement of law of the sea-related disputes in different regions of the world, in cooperation with the Korea International Cooperation Agency and the International Foundation for the Law of the Sea, aimed at providing government experts working in the maritime field with insight into the procedures for the settlement of disputes contained in Part XV of the Convention, with special attention given to the jurisdiction of the Tribunal and the procedures for bringing cases before it. During 2007, workshops took place in Libreville (organized jointly by the Tribunal and IOC), with the participation of representatives of 17 African States; in Kingston (organized by the Tribunal with the cooperation of the Government of Jamaica and the International Seabed Authority), attended by representatives of 19 Caribbean States; and in Singapore (organized by the Tribunal at the invitation of the Government of Singapore), with the participation of representatives of 18 Asian States. A workshop was held in Bahrain in early 2008 and future regional workshops are planned to be held in Cape Town, Buenos Aires and Manila during the year. In 2007, a capacity-building and training programme on dispute settlement under the

Convention, for mid-level Government officials was established, with the support of the Nippon Foundation, which set up a grant for that purpose.

B. Commission on the Limits of the Continental Shelf

20. The twentieth session of the Commission was held at Headquarters from 27 August to 14 September 2007 (for full details, see CLCS/56). The plenary part was held from 27 to 31 August as scheduled (see General Assembly resolution 61/222, para. 45), as well as on certain days during the second and third week of the session to facilitate the adoption of decisions in a formal setting. During the remainder of the session, the Commission proceeded with the technical examination of submissions at the Geographic Information System laboratories and other technical facilities of the Division. Developments relating to the submissions under consideration by the Commission at its twentieth session are presented below.

1. Consideration of the submission made by Australia

21. At the request of the delegation of Australia, a meeting was held between that delegation and the Commission on 28 August 2007. For the benefit of the new members of the Commission, the representatives of Australia repeated their presentation delivered at the nineteenth session prior to the Commission's consideration of the recommendations prepared by the Subcommission (see CLCS/54, paras. 25-32).

22. The Commission considered the recommendations prepared by the Subcommission in detail, region by region. The Commission decided to defer the adoption of the recommendations to the twenty-first session in view of ongoing deliberations on certain critical issues.

2. Consideration of the submission made by New Zealand

23. Prior to the twentieth session, the Subcommission had received, through the Secretariat, a comprehensive response from New Zealand to its preliminary considerations and questions presented at its nineteenth session.

24. At the twentieth session, the Subcommission continued its consideration of the submission, examined the new material and reviewed the results of its intersessional work. It held four meetings with the delegation of New Zealand, which presented the response referred to in paragraph 23 above. At the end of the session, the Subcommission presented its preliminary considerations on outstanding matters of the submission to the Commission.

25. The Subcommission continued the examination of the submission when it met in New York from 21 to 25 January 2008. It will continue its work intersessionally, as well as at the twenty-first session, from 24 to 28 March 2008, with an option to meet also the week before.[3]

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[3] Detailed information on the work of the Subcommission will be available in the Statement of the Chairman of the Commission that will be issued after the twenty-first session.

3. Consideration of the joint submission made by France, Ireland, Spain and the United Kingdom of Great Britain and Northern Ireland

26. During the intersessional period as well as at the twentieth session, the Subcommission examined the additional material submitted by the four delegations in response to its request. It continued the examination of the submission when it met in New York from 21 to 23 January 2008 and decided to hold further meetings during the twenty-first session, from 17 to 20 March and on 14 April 2008.[3]

4. Consideration of the submission made by Norway

27. During the intersessional period, Norway provided responses to all of the remaining questions posed by the Subcommission during the nineteenth session. The Subcommission met on a number of occasions during the week of 10 to 14 September 2007 to continue its analysis of the data and other materials contained in the submission, as well as the responses to questions received during the intersessional period. During that week, Norway arranged for two representatives of GeoCap to provide support to the Subcommission in the use of the GeoCap software.

28. The Subcommission continued to work on the submission during the intersessional period and met again in New York from 21 January to 1 February 2008. The Subcommission is scheduled to meet during the twenty-first session of the Commission, from 24 to 28 March and from 15 to 18 April 2008.[3]

5. Consideration of the submission made by France

29. At the twentieth session, the Commission began the consideration of the partial submission made by France in respect of the areas of French Guiana and New Caledonia. The submission was presented at the plenary meeting on 1 August 2007 by Elie Jarmache, head of the delegation of France.

30. The Commission established a new Subcommission for the consideration of the French submission (see CLCS/56, para. 49 for the composition of the Subcommission). During the twentieth session, the Subcommission held formal and informal meetings and convened a meeting with the French delegation. The Subcommission will hold its first full session at the twenty-first session of the Commission, from 14 to 18 April 2008.

6. Submission made by Mexico

31. On 13 December 2007, Mexico submitted to the Commission information on the limits of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured in respect of the western polygon in the Gulf of Mexico. The partial submission by Mexico is the ninth submission to be received by the Commission.

32. In accordance with rule 50 of the rules of procedure of the Commission, the Secretary-General circulated a Continental Shelf Notification, containing the executive summary of that submission and all charts and coordinates indicating the proposed outer limits of the continental shelf and the relevant baselines, to all States Members of the United Nations, including States parties to UNCLOS. The executive summary was made available on the website of the Commission, which is maintained by the Division (see www.un.org/Depts/los/clcs_new/submissions_

files/submission_mex.htm). The examination of the submission has been included in the provisional agenda of the twenty-first session of the Commission.

7. Workload of the Commission

33. The seventeenth Meeting of States Parties had requested coastal States Parties to submit to the Secretariat, for work planning purposes, information on whether they intend to make a submission to the Commission and by which date. In January 2008, the Secretariat published an information note (SPLOS/INF/20), which lists 48 States that have made or plan to make a submission. However, the actual number of submissions to the Commission may vary since several States have made, or are planning to make, partial submissions. Also, the information contained in the note does not imply that States that have not responded to the Secretariat's communication are not planning to make a submission to the Commission. Additional information is expected to be received by the Secretariat prior to the eighteenth Meeting of States Parties. For many States, May 2009 marks the end of the 10-year period to make a submission to the Commission. Consequently, the international community is increasingly concerned with the pace of the progress in delineation of the outer limits of the continental shelf beyond 200 nautical miles. Crucial importance is attached to the work of the Commission, as demonstrated by the decision of the seventeenth Meeting of States Parties (see SPLOS/162).

34. Some developing States indicated that they face difficulties in implementing the provisions of article 76 and annex II to the Convention, taking into account the decision contained in SPLOS/72, and that they may not be in a position to meet the above-mentioned 10-year period. Regarding the workload of the Commission, the projected number of submissions which the Commission will receive in the next few years, according to information provided by Governments and reflected, inter alia, in the information note (SPLOS/INF/20), has raised concerns among States concerning the Commission's capacity to examine and deliver its recommendations in the most efficient and expeditious manner (see A/62/PV.64 and 65).

V. Maritime security and safety

A. Introduction

35. The oceans and seas are of vital importance for transportation, livelihood, food and a range of other ecosystem goods and services. Thus, preserving and enhancing maritime security and safety in the oceans and seas has become a paramount concern. As all States share in the benefits of safer and more secure oceans, they also share in the responsibility for addressing major threats and challenges to maritime security and safety.

36. Until recently, the legal regimes for maritime security and maritime safety largely developed independently of one another. However, those regimes have common and mutually reinforcing objectives: a secure maritime space is certainly a safer one; and a maritime regime that prioritizes safety is less vulnerable to criminal activity and other threats to security. Efforts to enhance either maritime security or safety thus have cascading effects on the conduct and regulation of other activities in the oceans. Those regimes also share the need for cooperative efforts at all levels to enhance their effectiveness and address new challenges.

37. The present chapter aims to facilitate the work of the Consultative Process at its ninth meeting. Section B on maritime security, provides an overview of the legal regime in the Charter of the United Nations and UNCLOS for maritime security, describes the measures taken to address specific threats to maritime security and highlights current challenges.[4] Section C on maritime safety, provides an overview of the relevant international legal framework for maritime safety, highlights recent developments and provides an overview of current challenges.

38. Several aspects of maritime safety were already considered at the fourth meeting of the Consultative Process and detailed information was provided in the reports related to that meeting.[5] Since this is the first time that the United Nations will have an opportunity to consider the topic of maritime security comprehensively, it will receive more detailed treatment in the present chapter.

B. Maritime security

39. There is no universally accepted definition of the term "maritime security". Much like the concept of "national security", it may differ in meaning, depending on the context and the users. At its narrowest conception, maritime security involves protection from direct threats to the territorial integrity of a State, such as an armed attack from a military vessel. Most definitions also usually include security from crimes at sea, such as piracy, armed robbery against ships, and terrorist acts. However, intentional and unlawful damage to the marine environment, including from illegal dumping and the discharge of pollutants from vessels, and depletion of natural resources, such as from IUU fishing, can also threaten the interests of States, particularly coastal States. Various approaches have been taken to maritime security, depending on the State's perspective of the interests that may be threatened, either directly or indirectly, by activities in the oceans and seas.

40. The international community has come to understand that new and evolving threats require a new vision of collective security in the twenty-first century. Today's threats recognize no national boundaries, are connected, and must be addressed at all levels. Those threats go well beyond use of force, and extend to poverty, infectious disease and environmental degradation, internal conflicts, the spread and possible use of biological, chemical or nuclear weapons, terrorism, and transnational organized crime.[6] Since those threats are interconnected, the failure to

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[4] Section B will not consider the law of naval warfare, or provide a review of all threats to international peace and security which may have a maritime component.

[5] A/58/65 and the report on the work of the Consultative Process at its fourth meeting (A/58/95), which focused, inter alia, on the safety of navigation.

[6] The *Secretary-General's Report of the High-level Panel on Threats, Challenges and Change, A more secure world: our shared responsibility* (United Nations publication, Sales No. E.05.I.5 (A/59/565)) defined threats to international security as any event or process that leads to large-scale death or lessening of life chances and undermines States as the basic unit of the international system.

address one threat may exacerbate the risk of another. Many threats to collective security have the potential to undermine human security.[7]

41. In that context, climate change has received considerable attention by the international community.[8] The Security Council held its first debate on the impact of climate change on peace and security, during which it examined the relationship between energy, security and climate.[9] Since the oceans are a fundamental component of the climate system, both directly influencing the climate and impacted by changes in the climate, climate change may have important implications for maritime security.

42. New and existing transnational threats and challenges have also highlighted the importance of international cooperation in ensuring maritime security and the need for a coordinated response.[10] The interconnected nature of these threats calls for a more integrated approach to addressing them, at all levels.

1. Overview of the legal regime in the Charter of the United Nations and the United Nations Convention on the Law of the Sea

43. The international legal regime for maritime security consists of a number of international instruments, all operating within the framework of the Charter and UNCLOS.[11]

(a) Charter of the United Nations

44. The Charter sets out the basic principles of international relations and provides for the maintenance of international peace and security, including in the oceans and seas. All Member States are required to refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any State, or in any other manner inconsistent with the purposes of the United Nations, and to settle their international disputes by peaceful means (Art. 2). The system of collective security is based on that prohibition of the threat or use of force, and the primary responsibility of the Security Council for the maintenance of international peace and security.

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[7] http://ochaonline.un.org/HumanitarianIssues/HumanSecurity/tabid/2421/Default.aspx. The fourth UNITAR Workshop on Sea and Human Security, held in October 2007, adopted a broader conceptual approach to address the increasing global scope of human security, which incorporates economic and environmental security as well as political security. See "Towards a comprehensive security for seas and oceans", available from http://www.unitar.org/hiroshima/programmes/shs07/index.htm.

[8] Climate change will be considered in another chapter of the present report. For further details, see also A/62/66, paras. 326-336, A/62/66/Add.1, paras. 225-241, and A/62/66/Add.2, paras. 57-64. See also the United Nations Development Programme, *Human Development Report 2007/2008, Fighting Climate Change: Human Solidarity in a Divided World* (United Nations publication, Sales No. E.07.III.B.1), available from http://hdr.undp.org/en/reports/global/hdr2007-2008).

[9] http://www.un.org/News/Press/docs/2007/sc9000.doc.htm. Some delegations questioned the Council's role on this issue, while others welcome the Council's consideration.

[10] The importance for collective security of effective cooperation among States against transnational threats was also acknowledged by the 2005 World Summit, see General Assembly resolution 60/1, paras. 7 and 72.

[11] The following section does not provide an exhaustive review of all relevant binding and non-binding instruments.

45. Other principal organs of the United Nations also play an important role in the maintenance of international peace and security, including the General Assembly and the International Court of Justice. With respect to pacific settlement of disputes, Chapter VI of the Charter requires the parties to any dispute, the continuation of which is likely to endanger the maintenance of international peace and security, to seek a solution by peaceful means of their choice.

(b) United Nations Convention on the Law of the Sea

46. UNCLOS provides for the peaceful uses of the seas and the Area (i.e., arts. 88,138,141 and 301). It sets out the legal framework within which all activities in the oceans and seas must be carried out and establishes a careful balance between the sovereign rights, jurisdiction and freedoms enjoyed by States in the various maritime zones on the one hand, and their duties and obligations on the other.

47. The Convention provides for the accommodation of the various uses of the oceans and also for the resolution of conflicts regarding the attribution of rights and jurisdiction of States. Its provisions apply in respect of all activities, whether military or civil (i.e., arts. 56(2), 58(3), 59, 78, 87 and 147).

48. Flag States play a particularly important role in maritime security, as they are required to effectively exercise jurisdiction and control in administrative, technical and social matters over ships flying their flag. Flag States are responsible for ensuring that their vessels act in conformity with applicable rules of international law, wherever such vessels may be located.

49. In the territorial sea, coastal States have sovereignty, while other States enjoy the right of innocent passage. However, the passage of foreign ships can be prevented if it is prejudicial to the peace, good order and security of the coastal State. The rights, duties and jurisdiction of States in the territorial sea, including in relation to innocent passage and the exercise of criminal jurisdiction on board a foreign ship, are contained in Part II of UNCLOS. Certain provisions are also applicable to the right of innocent passage in archipelagic waters (art. 52). In the contiguous zone, a coastal State can exercise the control necessary to prevent and punish infringement of its customs, fiscal, immigration or sanitary laws and regulations within its territory or territorial sea (art. 33).

50. The legal regime governing straits used for international navigation is set out in Part III of UNCLOS, in particular the right of transit passage. Certain provisions also apply, mutatis mutandis, to archipelagic sea lanes passage (art. 54).

51. In the EEZ, coastal States have sovereign rights over natural resources, as well as jurisdiction with respect to the establishment and use of artificial islands, installations and structures (including establishing reasonable safety zones), marine scientific research, and the protection and preservation of the marine environment. UNCLOS provides for the enforcement of laws and regulations of the coastal State in the EEZ with respect to living resources, including boarding, inspection, arrest and judicial proceedings (Part V), and with respect to the protection and preservation of the marine environment (Part XII) (see also para. 109 below).

52. Ships of all States enjoy the freedoms of navigation and overflight in the EEZ and on the high seas, as well as other internationally lawful uses of the sea related to these freedoms and compatible with the other provisions of the Convention. Part VII of UNCLOS contains the legal regime pertaining to the high seas, including specific

provisions concerning the repression of piracy (see para. 57 below) and the suppression of illicit traffic in narcotic drugs and psychotropic substances (see para. 83 below). It also provides for the right of visit (art. 110) and the right of hot pursuit (art. 111), which are particularly important in the context of maritime security. UNCLOS provides that enforcement action against foreign vessels can only be exercised by warships, military aircraft and other ships or aircraft clearly marked and identifiable as being on government service and authorized to that effect.[12]

53. Finally, UNCLOS provides for the peaceful settlement of disputes and compulsory procedures entailing binding decisions (Part XV). Other provisions relating to some specific threats to maritime security will be addressed in subsection 2 below.

2. Addressing specific threats to maritime security

(a) Piracy and armed robbery against ships

54. The number of incidents of piracy and armed robbery is once again on the rise, and some areas of the world are particularly affected. Piracy and armed robbery against ships threaten maritime security by endangering, in particular, the welfare of seafarers and the security of navigation and commerce. These crimes may result in the loss of life, physical harm or hostage-taking of seafarers, significant disruptions to commerce and navigation, financial losses to shipowners,[13] increased insurance premiums and security costs, increased costs to consumers and producers, and damage to the marine environment. Such attacks have widespread ramifications, preventing humanitarian assistance and increasing the costs of future shipments to the affected areas.[14] For example, recent incidents of piracy and robbery against ships off the coast of Somalia have disrupted critical shipment of food aid by the World Food Programme (see A/62/66/Add.1, paras. 104-105).

55. Violence has increasingly been associated with incidents of piracy and armed robbery against ships and well-organized criminals may be responsible for some of the more sophisticated attacks (see A/56/58, para. 180). The INTERPOL Project Bada focuses on piracy and armed robbery against ships and was designed to identify members of gangs, existing hierarchies, areas of operation, modus operandi and links to other criminal activities.[15]

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[12] A number of provisions set forth the enforcement and other specific rights, duties and conditions relating to warships (see arts. 29-32, 95, 102, 107, 110-111, 224, 236). Article 30 provides that if a warship does not comply with the laws and regulations of the coastal State concerning passage through the territorial sea and disregards any request for compliance made to it, the coastal State may require it to leave the territorial sea immediately.

[13] Hijacked ships are sometimes given new names, repainted and given false registration papers and bills of lading. In response to this problem, the International Maritime Organization Assembly adopted resolution A.923(22) (2001) on Measures to prevent the registration of phantom ships.

[14] The marked increase in attacks in 2007 has put at risk the supply of humanitarian aid to hundreds of thousands of Somalis (Contribution of the World Food Programme).

[15] Contribution of INTERPOL.

56. IMO has reported 4,446 incidents of piracy and armed robbery at sea since it began compiling statistics in 1984.[16] The International Maritime Bureau of the International Chamber of Commerce noted a 10 per cent increase in reported incidents of piracy and armed robbery in 2007 compared to 2006, attributable in part to a significant rise in Nigeria and Somalia, as well as an increase in violent incidents.[17] Available statistics likely underestimate the breadth of the problem, as shipowners are reluctant to report incidents owing to resulting business disruptions and increased insurance premiums. Insurance companies also tend to settle such claims discretely.

57. UNCLOS provides that all States have an obligation to cooperate to the fullest possible extent in the repression of piracy (art. 100) and have universal jurisdiction on the high seas to seize pirate ships and aircraft, or a ship or aircraft taken by piracy and under the control of pirates, and arrest the persons and seize the property on board (art. 105). Those provisions also apply in the EEZ (art. 58(2)).

58. Concerning acts of armed robbery against ships committed in the internal waters or territorial sea of a State,[18] primary responsibility for enforcement falls on coastal States. Armed robbery against ships also constitutes an offence under the 1988 Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA Convention) (see also para. 68 below) and, in some cases, the 2000 United Nations Convention against Transnational Organized Crime.

59. The General Assembly has repeatedly encouraged States to cooperate to address piracy and armed robbery at sea in its resolutions on oceans and the law of the sea (see General Assembly resolution 62/215, paras. 61 and 62, for example). Coordination and cooperation in combating piracy and armed robbery against ships was one of the areas of focus at the second meeting of the Consultative Process in 2001 (see A/56/121).

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[16] Statistics compiled as at 30 October 2007. In the first 10 months of 2007, 251 incidents were reported in the following areas: the South China Sea (59), East Africa (58), West Africa (48), the Indian Ocean (41), South America (20), the Malacca Straits (10), the Arabian Sea (7), the Persian Gulf (4) the Mediterranean (3) and the North Sea (1) (IMO, Reports on Acts of Piracy and Armed Robbery Against Ships, Quarterly and Monthly Reports, MSC.4/Circ. 105, 106, 110, and 111).

[17] The Bureau reported a decrease in incidents of piracy in Asia owing to increased vigilance and patrolling by littoral States. New measures such as the escort of food aid ships by the French Navy and a greater cooperation between the coastal State and foreign naval forces off the coast of Somalia were also seen as positive trends. See International Chamber of Commerce-International Maritime Bureau, Piracy and Armed Robbery Against Ships: Annual Report 2007.

[18] The Code of Practice for the Investigation of the Crimes of Piracy and Armed Robbery Against Ships (IMO resolution A.922(22) (2001), defines armed robbery against ships as "any unlawful act of violence or detention or any act of depredation, or threat thereof, other than an act of 'piracy', directed against a ship or against persons or property on board such ship, within a State's jurisdiction over such offenses."

60. IMO and the World Food Programme have also encouraged greater cooperation between coastal, flag and other States to reduce incidents of piracy off the coast of Somalia.[19] In Security Council resolution 1772 (2007), the Council, inter alia, encouraged Member States whose naval vessels and military aircraft operate in international waters and airspace adjacent to the coast of Somalia to be vigilant to any incident of piracy and to take appropriate action to protect merchant shipping, in particular the transportation of humanitarian aid.

61. To assist in the implementation of international instruments, IMO has promulgated circulars on Guidance to shipowners and ship operators, shipmasters and crews on preventing and suppressing acts of piracy and armed robbery against ships and Recommendations to Governments for preventing and suppressing piracy and armed robbery against ships.[20] It has also adopted the Code of Practice for the Investigation of the Crimes of Piracy and Armed Robbery Against Ships (resolution A.922 (22)). IMO also holds seminars and regional training programmes to assist States in developing the appropriate national framework for combating such crimes. The Comité Maritime International has issued a draft model national law on acts of piracy and maritime violence.[21] INTERPOL has also recently announced its intention to launch a global database on stolen vessels.[15]

62. Various measures have been envisaged to enhance cooperation at the regional and bilateral levels. For example, the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia provides for States parties to take measures to suppress both piracy and armed robbery against ships, to share information and provide mutual legal assistance. The Information Sharing Centre of the Regional Cooperation Agreement acts as a clearing house for information regarding incidents of piracy and armed robbery at sea in Asia. Furthermore, the planned Maritime Organization for West and Central Africa (MOWCA) Integrated Subregional Coast Guard Network would allow participating coastguard vessels to continue the pursuit of ships suspected of piracy or armed robbery into the territorial seas of other States parties, so as to facilitate enforcement.[22] A regional agreement on piracy and armed robbery against ships is also being contemplated for the Western Indian Ocean.[23]

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[19] In its resolution A.1002 (25) on piracy and armed robbery against ships in waters off the coast of Somalia, of 29 November 2007, the IMO Assembly, inter alia, requested the Transitional Federal Government of Somalia to consent to warships or military aircraft, or other ships or aircraft clearly marked and identifiable as being on government service, which are operating in the Indian Ocean, entering its territorial sea when engaging in operations against pirates or suspected pirates and armed robbers endangering the safety of life at sea; strongly urged Governments to take a variety of actions in relation to piracy and armed robbery against ships entitled to fly their flag in the waters off the coast of Somalia; and called upon Governments in the region to conclude and implement a regional agreement to prevent, deter and suppress piracy and armed robbery against ships.

[20] MSC/Circ.622/Rev.1 and MSC/Circ.623/Rev.3. A draft regional agreement on cooperation in preventing and suppressing such acts is appended to Circular 622/Rev.1.

[21] 2000 Yearbook of the Comité Maritime International.

[22] See www.mowca.org/news3-e.htm. The MOWCA General Assembly of Ministers recently adopted a resolution which forms the basis of actions plans to be developed for the implementation of the integrated coastguard function network (see IMO document LEG 93/13, para. 12(c).1).

[23] A subregional meeting on piracy and armed robbery against ships in the Western Indian Ocean will take place in Dar es Salaam, from 14 to 18 April 2008.

(b) Terrorist acts involving shipping, offshore installations and other maritime interests

63. Shipping, offshore installations and other maritime interests could be potential targets for terrorist attacks. Such attacks could have widespread effects and thus constitute a major threat to maritime security.[24]

64. There are currently 16 global and 14 regional instruments, covering a wide range of terrorist offences (see A/62/160, para. 120). With specific regard to terrorist acts involving shipping, offshore installations and other maritime interests, the following instruments can be highlighted: (a) the SOLAS Convention; (b) the SUA Convention and its 2005 Protocol; and (c) the SUA Protocol and its 2005 Protocol. Also particularly relevant are the provisions of UNCLOS regarding flag State control and the enforcement measures that States can take under UNCLOS (see paras. 46-53 above).

65. Certain provisions in Chapter V of SOLAS (Safety of navigation), as well as Chapter XI-2 (Special measures to enhance maritime security), were developed, in large part, to counter the threat of terrorist acts. Chapter V provides for two types of vessel monitoring systems: automatic information systems and long range identification and tracking systems. Subject ships are required to be fitted with automatic information systems, which will transmit information on a ship's identity, type, position, course, speed, navigational status and other safety-related information, and must be operational at all times except where international agreements, rules or standards provide for the protection of navigational information.

66. SOLAS regulation V/19.1 on long range identification and tracking systems entered into force on 1 January 2008, and applies to ships constructed on or after 31 December 2008 with a phased-in implementation schedule for ships constructed before 31 December 2008. Once operational,[25] SOLAS Contracting Governments will receive information about ships navigating within a distance not exceeding 1,000 nautical miles off their coast, so as to monitor the progress of vessels and identify those that pose a threat to maritime security, as well as aid search and rescue operations (also see para. 191 below, and A/61/63/Add.1, paras. 66-70). In October 2007, MSC took a number of decisions to ensure the timely implementation of the long range identification and tracking systems system (see IMO document MSC/83/28, paras. 6.81-6.96).

67. Chapter XI-2 of SOLAS includes a set of measures aimed at enhancing maritime security on board ships and at ship/port interface areas, including mandatory requirements for ships to comply with the ISPS Code (see SOLAS/CONF.5/34, annex 1, Conference resolution 2, annex). That Code requires ships and port facilities to undertake security assessments, develop security plans, and appoint security officers to oversee implementation. Although the ISPS Code does not apply to offshore installations (see para. 51 above), guideline 4.19 of Part B indicates that States should consider establishing appropriate security measures for fixed and floating platforms and offshore drilling units.[26] In addition, during the fifth SOLAS Conference, the IMO encouraged States to facilitate the interoperability of such measures with the ISPS Code (see SOLAS/CONF.5/34, annex 2, Conference resolution 7).

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[24] See, e.g., the Organization for Economic Cooperation and Development Maritime Transport Committee report entitled "Security in maritime transport: risk factors and economic impact", July 2003.

[25] It is intended to be operational as at 30 December 2008.

[26] For more information, see A/58/65, paras. 104-108; and A/59/62, paras. 158-160. IMO is also considering the security aspects of the operation of ships that do not fall within the scope of SOLAS Chapter XI-2 and the ISPS Code; see also para. 120 below.

68. The main purpose of the SUA Convention is to ensure that appropriate action is taken against persons committing unlawful acts against ships, including the seizure of ships by force, acts of violence against persons on board ships, and the placing of devices on board a ship which are likely to destroy or damage it. Once in their custody, States parties are required to prosecute or extradite suspected offenders. The SUA Convention also provides for mutual assistance, cooperation in prevention of offences and information-sharing between States parties. The SUA Protocol applies many of the provisions of the SUA Convention to offences committed on or against a fixed platform located on the continental shelf.

69. Once they enter into force, the 2005 Protocols will broaden the list of existing offences under the SUA Convention and the SUA Protocol to cover a number of additional terrorist acts. The amended SUA Convention will include as offences: using a ship in a manner that causes death or serious injury or damage, committed unlawfully and intentionally, when the purpose is to intimidate a population, or to compel a Government or an international organization to do or abstain from doing any act; and unlawfully and intentionally transporting another person on board a ship knowing that the person has committed an offence under the SUA Convention or one of nine international counter-terrorism conventions listed in its Annex (see also para. 77 below). Notably, the 2005 Protocol contains provisions for the boarding of ships by a non-flag State party where there are reasonable grounds to suspect that the ship or a person on board the ship is, has been, or is about to be involved in the commission of an offence under the Convention. Subject to certain exceptions, such boardings may only be undertaken with the express consent of the flag State. A number of safeguards must be met when a State party takes such measures (see also A/61/63, paras. 96-100).

70. The Security Council has adopted a number of resolutions that provide a wide range of measures to counter international terrorism (see, for example, resolution 1373 (2001)), including resolutions that impose specific obligations on States to prevent and suppress terrorist acts involving ships, offshore installations and other maritime interests. For example, resolutions 1735 (2006) and 1526 (2004) require States to prevent the supply, sale or transfer of arms and related material to certain individuals, groups, undertakings and entities suspected of terrorism using their flag vessels or aircraft. The General Assembly has also adopted various resolutions relating to the prevention and suppression of terrorists acts, as well as important counter-terrorism instruments (see www.un.org/terrorism/ga).

71. At the regional level, instruments addressing terrorist acts include the ASEAN Convention on Counter Terrorism and the Additional Protocol to the South Asian Association for Regional Cooperation Convention on Suppression of Terrorism,[27] which both incorporate the offences contained in other international counter-terrorism conventions, including the SUA Convention and the SUA Protocol. Finally, there are a number of bilateral agreements, arrangements and cooperative initiatives that have been concluded. For example, the Container Security Initiative is a cooperative arrangement between the Government of the United States of America and 57 currently participating ports in 32 other countries to improve container security by identifying and screening high-risk containers, and preventing in-voyage tampering (see http://www.cbp.gov/xp/cgov/border_security/sbi). A number of bilateral ship boarding agreements have also been concluded (see, e.g., www.state.gov/t/isn/c12386.htm).

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[27] See www.aseansec.org/19250.htm and www.saarc-sec.org. The ASEAN Convention also incorporates the offences included in the 2005 Protocols.

(c) Illicit trafficking in arms and weapons of mass destruction

72. Illicit trafficking by sea of small arms and of biological, chemical or nuclear weapons constitutes one of the major threats to maritime security. The Security Council has recognized that the dissemination of illicit small arms and light weapons has hampered the peaceful settlement of disputes, fuelled disputes into armed conflicts and contributed to the prolongation of armed conflicts (see S/PRST/2005/7). The General Assembly has also recognized that the absence of common international standards on the import, export and transfer of conventional arms is a contributory factor to conflict, the displacement of people, crime and terrorism, thereby undermining peace, reconciliation, safety, security, stability and sustainable development (see General Assembly resolution 61/89, preamble).

73. In the case of biological, chemical or nuclear weapons, the IAEA recently convened an International Conference on Illicit Nuclear Trafficking: Collective Experience and the Way Forward, held in Edinburgh, from 19 to 22 November 2007, which concluded, inter alia, that illicit nuclear trafficking remains an international concern and that efforts must continue to establish effective systems to control movement of nuclear and other radioactive materials.[28] The Illicit Trafficking Database of IAEA has confirmed a total of 275 incidents involving unauthorized possession of nuclear materials and related criminal activities between January 1993 and December 2006, many of which were reported by the Black Sea littoral States.[29]

74. Among the difficulties in controlling international arms movements are inadequate flag State and port State controls.[30] UNCLOS requires flag States to assert effective control over ships flying their flag. In addition, its provisions regarding innocent passage, transit passage, archipelagic sea lanes passage, and the contiguous zone are particularly relevant to preventing illicit trafficking in small arms and weapons of mass destruction.

75. Illicit trafficking in small arms is regulated by a number of international instruments;[31] however, there is currently no global small arms control instrument specifically regulating trafficking by sea. The Security Council has adopted a number of resolutions to limit illicit trafficking of arms by sea, including resolution 1701 (2006), which authorized the United Nations Interim Force in Lebanon to

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[28] See www-pub.iaea.org/MTCD/Meetings/PDFplus/2007/cn154/EdinburghFindings.pdf.

[29] "IAEA Illicit Trafficking Database releases latest aggregate statistics", staff report, 11 September 2007, available from http://www.iaea.org/NewsCenter/News/2007/itdb.html; Conclusions resulting from the International Seminar entitled "How can the Black Sea Region contribute to improved global security?", held in Bucharest, from 7 to 9 June 2007, avalable for http://www.nonproliferation.ro/pagini/conclusions-and-recommendations.php.

[30] See the report of the Group of Governmental Experts established pursuant to General Assembly resolution 54/54 V of 15 December 1999, entitled "Small arms" (A/CONF.192/PC/33, paras. 31 and 79-80).

[31] See, for example, the Protocol against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition, supplementing the United Nations Convention against Transnational Organized Crime; the Economic Community of West African States Convention on Small Arms and Light Weapons, their Ammunition and Other Related Materials; the Inter-American Convention Against the Illicit Manufacturing of and Trafficking in Firearms, Ammunition, Explosives, and Other Related Materials; the Nairobi Protocol for the Prevention, Control and Reduction of Small Arms and Light Weapons in the Great Lakes Region and the Horn of Africa.

assist Lebanese authorities in suppressing the illicit trafficking of weapons by sea within Lebanese territorial waters (see A/62/66/Add.1, para. 97).

76. Numerous international initiatives are also in place to combat illicit trafficking in small weapons, including the Programme of Action to Prevent, Combat and Eradicate the Illicit Trade in Small Arms and Light Weapons in All Its Aspects (see A/CONF.192/15, chap. IV). The Group of Governmental Experts appointed by the Secretary-General has been given a mandate to examine the feasibility, scope and draft parameters for a comprehensive, legally binding instrument establishing common international standards for the import, export and transfer of conventional arms, and to report to the General Assembly at its sixty-third session (see General Assembly resolution 61/89, para. 2).

77. The transfer of biological, chemical or nuclear weapons is regulated by a number of specialized treaties, including the 1980 Convention on the Physical Protection of Nuclear Material.[32] In addition, the 2005 Protocol to the SUA Convention will make it an offence to transport on a ship: (1) any explosive or radioactive material, knowing that it is intended to be used to cause, or in a threat to cause, death or serious injury or damage for the purpose of intimidating a population, or compelling a government or an international organization to do or to abstain from doing any act; (2) a biological, chemical or nuclear weapon, knowing it to be such a weapon; (3) any source material, special fissionable material, or equipment or material especially designed or prepared for the processing, use or production of special fissionable material, knowing that it is intended to be used in a nuclear explosive activity or in any other nuclear activity not under safeguards pursuant to an IAEA comprehensive safeguards agreement; or (4) any equipment, materials or software or related technology that significantly contributes to the design, manufacture or delivery of a biological, chemical or nuclear weapon, with the intention that it will be used for such purpose.

78. International agreements, such as the Treaty on the Non-Proliferation of Nuclear Weapons, the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction and the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, contain restrictions or prohibitions on the transfer of biological, chemical or nuclear weapons which may also apply in the maritime context. For example, a party to the Chemical Weapons Convention is required to adopt the necessary measures to prohibit natural and legal persons anywhere on its territory or in any other place under its jurisdiction as recognized by international law from undertaking any activity prohibited to a State Party under that Convention; not permit in any place under its control any activity prohibited to a State Party under that Convention; and extend its penal legislation to any activity prohibited to a State Party under that Convention undertaken anywhere by natural persons, possessing its nationality, in conformity with international law. It has been suggested that States parties to the Chemical Weapons Convention may be under a general obligation to take measures to interrupt or facilitate interrupting a transfer of chemical weapons or chemicals contrary to the provisions of that Convention, either in their capacity as flag State or in their capacity as coastal State; and that the general obligation to cooperate

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[32] Restrictions are also contained in disarmament treaties; see http://disarmament.un.org/treatystatus.nsf.

contained in that Convention may be implemented, inter alia, by concluding boarding agreements.[33]

79. The Security Council, in its resolution 1540 (2004), inter alia, called upon States to develop and maintain appropriate effective border controls and law enforcement efforts to detect, deter, prevent and combat the illicit trafficking and brokering of biological, chemical or nuclear weapons to non-State actors. It also called upon all States to take cooperative action to prevent illicit trafficking of such weapons, their means of delivery and related materials.[34]

80. A number of export control regimes have been established to prevent the proliferation of biological, chemical or nuclear weapons and their means of delivery, including the Australia Group, the Missile Technology Control Regime, the Nuclear Suppliers Group, the Wassenaar Arrangement and the Zangger Committee (see http://disarmament.un.org/wmd/expctrl.html).

81. The Proliferation Security Initiative is a cooperative arrangement among some States to establish a coordinated basis through which to deter and impede shipments of weapons of mass destruction, their delivery systems, and related materials to and from States and non-State actors considered to be of proliferation concern, in accordance with a set of agreed interdiction principles.[35] Participating States commit themselves to taking action to board and search vessels flying their flag reasonably suspected of carrying weapons of mass destruction, to seriously consider providing consent under the appropriate circumstances to the boarding and searching of their own flag vessels by other States, and to stopping and searching vessels reasonably suspected of illicit trafficking in their internal waters, territorial sea and contiguous zone. Concerns have been expressed regarding the Proliferation Security Initiative (see, e.g., A/62/133, para. 7; and SPLOS/148, para. 85 and SPLOS/164, para. 101).

(d) Illicit traffic in narcotic drugs and psychotropic substances

82. Illicit traffic in narcotic drugs and psychotropic substances by sea poses a serious threat to maritime security. It has been reported that approximately 70 per cent of the total quantity of drugs seized is confiscated either during or after transportation by sea.[36] Fishing vessels, pleasure craft, and container vessels are particularly favoured by syndicates (see UNODC/HONLAC/2007/3). Drugs are often concealed unknowingly among legitimate cargo consignments on container vessels without the involvement of the crew,[36] and fishing vessels provide both a means of transport and offshore refuelling and provisioning. Drug cartels regularly alter transportation patterns and shipping routes in order to evade detection and respond to drug markets (see UNODC/HONLAC/2006/5).

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[33] Contribution of the Organization for the Prohibition of Chemical Weapons. See also article VII of the Chemical Weapons Convention.

[34] The United Nations Office for Disarmament Affairs held its second workshop on the implementation of resolution 1540 (2004) in Gaborone on 27-28 November 2007 (see http://www.un.org/News/Press/docs/2007/afr1624.doc.htm).

[35] As at 9 November 2007, 86 States participate in the Initiative and 8 have signed bilateral ship boarding agreements with the United States in the context of the Initiative's interdiction principles (http://www.state.gov/t/isn/c10390.htm).

[36] Aune, B. R., "Maritime drug trafficking: an underrated problem", available at http://www.unodc.org/unodc/en/data-and-analysis/bulletin/bulletin_1990-01-01_1_page008.html. See also *World Drug Report 2006* (United Nations publication, Sales No. E.06.XI.10, vols. I and II).

83. UNCLOS requires flag States to exercise effective control over ships flying their flag. As regards the enforcement rights of coastal States, the provisions regarding innocent passage, transit passage, archipelagic sea lanes passage, the contiguous zone and the right of hot pursuit are particularly relevant. On the high seas and by reference in the EEZ, UNCLOS requires all States to cooperate in the suppression of illicit traffic in narcotic drugs and psychotropic substances engaged in by ships, and provides for a flag State to request the cooperation of other States when it has reasonable grounds for believing that a ship flying its flag is engaged in such activity (art. 108). UNCLOS also provides for the right of visit.

84. The 1988 United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances (Drugs Convention) requires a flag State to establish its jurisdiction over offences committed on board vessels flying its flag.[37] Its article 17 serves to implement article 108 of UNCLOS and provides for the possibility of a State party other than the flag State which has reasonable grounds to suspect that a vessel exercising freedom of navigation is engaged in illicit traffic to request confirmation of registration from the flag State and if confirmed to seek authorization to take appropriate measures in respect of the vessel. Any action must take due account of the rights and obligations and the exercise of jurisdiction of coastal States under UNCLOS.

85. At the regional level, two agreements have been adopted to facilitate the implementation of article 17 of the Drugs Convention, and to address other law enforcement issues related to drug trafficking by sea. The 1995 Council of Europe Agreement on Illicit Traffic by Sea Implementing Article 17 of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances and the 2003 Agreement concerning Cooperation in Suppressing Illicit Maritime and Air Trafficking in Narcotic Drugs and Psychotropic Substances in the Caribbean Area both provide for the possibility of a State Party other than the flag State to board and search suspect vessels when located seaward of any State's territorial sea. The prior consent of the flag State is not required under the Caribbean Agreement unless the flag State has specifically notified the Depositary of such requirement.

86. Numerous bilateral agreements and arrangements also promote cooperation in the suppression of illicit drug trafficking, such as an agreement between Costa Rica and the United States of America, which establishes a joint law enforcement ship-rider programme in order to facilitate and authorize enforcement, and real-time information exchange via the Internet between Ecuador and Colombia on the movement of vessels and related basic data (see UNODC/HONLAC/2007/3, para. 66).

87. Apart from assisting States in addressing practical problems in the implementation of the Drugs Convention, e.g., the confirmation of registry requirement in article 17,[38] the United Nations Office on Drugs and Crime has also fostered inter-agency cooperation and information exchange in relation to illicit trafficking through its Container Control Programme. That Programme focuses on

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[37] Other international instruments, including the Single Convention on Narcotic Drugs of 1961 and the Convention on Psychotropic Substances of 1971, do not contain specific provisions on illicit traffic by sea.

[38] The Office has published the Practical Guide for Competent National Authorities under Article 17 of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988, the Maritime Drug Law Enforcement Training Guide; and the *Commentary on the United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988* (United Nations publication, Sales No. E.98.XI.5 (E/CN.7/590)).

assisting law enforcement agencies from developing countries in identifying high-risk freight containers and is currently being implemented in four pilot countries.[39] The Office has also created information exchange channels to enable States to send and receive alerts concerning the movement of suspicious containers, and developed a project on law enforcement and intelligence cooperation against cocaine trafficking from Latin America to West Africa by improving interdiction capacity (UNODC/HONLAC/2007/2, paras. 11 and 13).[39] The IMO has also adopted Revised Guidelines for the Prevention and Suppression of the Smuggling of Drugs, Psychotropic Substances and Precursor Chemicals on Ships Engaged in International Maritime Traffic.[40]

88. The Heads of National Drug Law Enforcement Agencies have stressed the need for joint or coordinated maritime patrols with regional partners, as well as inter-agency coordination and the strengthening of law enforcement cooperation at the international level (UNODC/HONLAP/2006/5, para. 5; UNODC/HONLAC/2006/5, para. 10; UNODC/HONEURO/2007/5, para. 4; UNODC/HONLAF/2005/5, para. 3). In the Caribbean and Latin American region a number of cooperative initiatives or national measures have been undertaken (see also UNODC/HONLAC/2007/3 for more details). Likewise, in Europe, the importance of the role of the Maritime Analysis Operational Centre-Narcotics has been highlighted as a focal point for the exchange of intelligence and operational coordination.[41] In Africa, close cooperation of law enforcement authorities, as well as joint operations with authorities in Europe, has led to significant seizures of controlled substances (see UNODC/HONLAF/2005/5, paras. 8 and 10). In Asia and the Pacific, States are cooperating to combat illicit drug trafficking through various bilateral and multilateral initiatives (see UNODC/HONLAP/2007/5, paras. 8-10 and 14).

(e) Smuggling and trafficking of persons by sea

89. Significant numbers of people continue to enter countries every year without authorization, including smuggled migrants and victims of trafficking.[42] The reasons for clandestine migration are varied and include escaping from conflict, human rights violations, economic deprivation and depletion of natural resources.

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[39] Contribution of the United Nations Office on Drugs and Crime.

[40] Report of the Facilitation Committee on its 34th session, FAL 34/19, para. 7.3 and annex 2 (resolution FAL.9(34)).

[41] UNODC/HONEURO/2007/5, para. 2c; the Operational Centre is an informal intergovernmental task force set up to tackle maritime smuggling of drugs into Europe. It is comprised of France, Ireland, Italy, the Netherlands, Portugal, Spain and the United Kingdom.

[42] Owing to the nature of the activity it is difficult to estimate the number of people involved. An unprecedented number of people used the maritime route to cross international borders clandestinely in 2006. The numbers of people estimated to have arrived in 2007 in Spain, Italy, Greece and Yemen were 18,000, 19,900, 13,000 and 29,500, respectively. The numbers of people reported dead or missing were, respectively, 360, 471, 159 and 1,400 (see www.unhcr.org/cgi-bin/texis/vtx/home). It is also estimated that only two thirds of the 300,000 sub-Saharan Africans who attempt every year to reach the European Union by sea via its closest entry points succeed. Reports indicate that the number of stowaways in 2006 more than tripled compared to 2005, with 244 incidents involving 667 stowaways. See also A/58/65, paras. 110-111 and A/62/66, paras. 70-71. It is estimated that the number of people trafficked globally across international borders is between 600,000 and 800,000 annually. See the 2005 report on victims of trafficking and Violence Protection Act of 2000: trafficking in persons, available from www.state.gov/g/tip/rls/tiprpt/2005.

Clandestine migration usually entails considerable risks, such as from unseaworthy ships/craft, inhumane conditions on board, or from being abandoned at sea by smugglers. Current challenges relating to the treatment of persons rescued at sea are addressed in section C below.

90. Amid concerns over the increase in clandestine migration, as well as the exploitation and abuse of migrants in these situations, the international community has recognized the need for urgent action at all levels to combat trafficking in persons and the smuggling of migrants.[43] Countries of destination in particular are concerned about maintaining effective border and immigration controls and combating transnational organized crime.

91. The legal and policy framework applicable to international migration by sea is multifaceted and includes international human rights law, refugee law, the law applicable to transnational organized crime, as well as the law of the sea.[44] UNCLOS requires flag States to exercise effective control over ships flying their flag. As regards the enforcement rights of other States, the provisions regarding innocent passage, transit passage, archipelagic sea lanes passage, the contiguous zone, the right of hot pursuit and the right of visit are particularly relevant to the prevention of smuggling of persons.

92. Instruments relating to smuggling and trafficking of persons include the Protocol against the Smuggling of Migrants by Land, Sea and Air (the Migrants Protocol), and the Protocol to Prevent, Suppress and Punish Trafficking in Persons, especially Women and Children (the Trafficking in Persons Protocol) supplementing the United Nations Convention against Transnational Organized Crime.[45] The Migrants Protocol permits a State party, other than the flag State, to board, search or take other action against a vessel exercising freedom of navigation which is suspected of being engaged in the smuggling of migrants by sea, with the authorization of the flag State and subject to certain safeguards, for example, relating to the safety and humane treatment of persons on board, and the rights, obligations and jurisdiction of coastal States.[46] Nothing in the Protocol shall affect the other rights and obligations of States and individuals under international law, including international humanitarian law and international human rights law and in particular, where applicable, the 1951 Convention and the 1967 Protocol relating to the Status of Refugees and the principle of non-refoulement as contained therein.

93. Among other obligations, the Trafficking in Persons Protocol requires States to take measures to prevent commercial carriers from being used to commit trafficking offences, and to provide victims with assistance and protection.

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[43] See the summary of the High-level Dialogue on International Migration and Development (A/61/515), para. 17.

[44] For information regarding the nine core international human rights treaties, see www.ohchr.org. The core instruments of international refugee law are the 1951 Convention relating to the Status of Refugees and its 1967 Protocol. The most significant of the legal protections for refugees is the prohibition of the expulsion or forcible return of refugees (non-refoulement) (art. 33).

[45] The United Nations Office on Drugs and Crime legislative guides for the implementation of the Migrants Protocol and the Trafficking in Persons Protocol are available at www.unodc.org. There is no general definition of "migrant" in international law (E/CN.4/2000/82, para. 25).

[46] See A/56/58, paras. 228-233. Article 8 of the Migrants Protocol is modelled on article 17 of the Drugs Convention (see para. 84 above).

94. Prior to the adoption of the Migrants Protocol, IMO approved in 1988 interim, non-binding measures for combating unsafe practices associated with the trafficking or transport of migrants by sea (MSC/CIRC.896/Rev.1). The measures address certain unsafe practices involving the operation of a ship, e.g., violations of SOLAS, which constitute a serious danger for the lives or the health of the persons on board. IMO also publishes biannual reports of unsafe practices associated with the trafficking or transport of migrants by sea (see http://www.imo.org).

95. Issues relating to stowaways are addressed in the Convention on Facilitation of International Maritime Traffic (see also A/57/57, paras. 164-170), including cooperation to prevent stowaway incidents, the obligations of masters to provide for the welfare of stowaways, and the allocation of responsibilities after the discovery of the stowaway. The measures are to be applied in accordance with protection principles as set out in international instruments, including in relation to the status of refugees. Quarterly reports of stowaway incidents are published by IMO (see http://www.imo.org).

96. The problem of clandestine maritime migration has led to increased cooperation between States, including African and European States, which has focused on: (1) the control and surveillance of borders of destination countries and preventing clandestine journeys by sea;[47] (2) strengthening the capacity of countries of origin to identify people in need of protection under international instruments; (3) managing migration through legal channels; and (4) addressing the root causes of migration.[48] The first Euro-Mediterranean Ministerial Meeting on Migration was held in November 2007 and the Agreed Ministerial Conclusions included commitments with regard to a number of topics including legal migration, illegal migration, and migration and development (http://www.eu2007.pt/UE/vEN/Noticias_Documentos/20071119Conclusoeseuromed.htm).

97. In that context, one of the challenges for States is "mixed migration", namely the arrival of people who have different protections and rights under international law, and the need to ensure that individuals entitled to such protections and rights are fully protected[49] (see also see paras. 132, 154 and 221 below).

(f) Illegal, unreported and unregulated fishing

98. Food insecurity has been identified as one of the major threats to international peace and security (see A/59/565, para. 52). In the context of the fishing sector, overexploitation of fishery resources remains a major challenge to achieving sustainable fisheries, and thus contributes to food insecurity around the world.

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[47] For example, the European agency for border control (Frontex) has established joint patrols with several African States in order to interrupt and deter smuggling and trafficking operations at their earlier stages in the countries of origin.

[48] See, for example, the Africa-European Union Partnership on Migration, Mobility and Employment. See also A/58/65, para. 111; and A/62/66, paras. 74-75.

[49] Contribution of UNHCR.

99. It is well recognized that one of the main causes of overfishing is IUU fishing.[50] These fishing activities involve complex webs of actions and entities (see FAO document COFI/2007/7), which have undermined international conservation and management efforts and also constrained progress in achieving food security for dependent populations and supporting sustainable livelihoods as well as poverty alleviation strategies for fishers and fishing communities, particularly in developing countries.

100. IUU fishing activities have been reported in various regions of the world and take place both on the high seas and in areas under the national jurisdiction of coastal States. It is carried out by fishing vessels of member and non-member States of RFMO/As. Some IUU fishing has also been associated with organized crime (ibid.) and other illicit activities, for example, actions to avoid detection, bribery and corruption, and the use of armed resistance to surveillance and enforcement operations.[51] Operators of fishing vessels engaged in IUU fishing may also be more likely to undermine international rules and regulations governing safety of navigation, labour conditions, and the well-being of fishers.

101. One major factor which gives rise to IUU fishing is the continued lack of effective control by States over fishing vessels flying their flag. These activities also continue due to increases in demand for fish and fish products (see FAO document C 2003/21). For coastal States, particularly developing States, the inability to exercise effective monitoring, control and surveillance of fishing activities in areas within their national jurisdiction creates an environment in which IUU fishing can flourish (also see para. 127). Because of the inherent complexity of the activities, eliminating IUU fishing requires, inter alia, effective implementation of flag States' responsibilities and obligations, port States' measures and market-related measures (see also sect. 3 of the present chapter and chap. VII below).

102. A number of existing international instruments provide a legal and policy framework to address IUU fishing. UNCLOS sets out the legal framework for flag States and coastal States to take measures in respect of IUU fishing vessels. It requires flag States to exercise effective control over ships flying their flag. On the high seas, flag States are required to take, or to cooperate with other States in taking, measures for their respective nationals as may be necessary for the conservation of the living resources of the high seas (art. 117). In the territorial sea, in straits used for international navigation, archipelagic sea waters and in the EEZ, a coastal State can take enforcement measures to ensure compliance with its laws and regulations.

103. The United Nations Fish Stocks Agreement and the 1993 FAO Agreement to Promote Compliance with International Conservation and Management Measures by

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[50] In 2005, the global catch value of IUU fishing was estimated to be between US$ 4.2 and US$ 9.5 billion. The value of IUU fishing in the EEZs of coastal States in sub-Saharan Africa was estimated to be approximately US$ 0.9 billion, equal to 19 per cent of the current landed value of catch in that region (Marine Resources Assessment Group Ltd, *Review of Impacts of Illegal, Unreported and Unregulated Fishing on Developing Countries: Final Report*, 2005, para. 6.1, available from http://www.high-seas.org).

[51] "Closing the net: Stopping illegal fishing on the high seas", 2006, Final report of the Ministerially-led Task Force on IUU Fishing on the High Seas, chap. 2 and p. 61, available from www.high-seas.org.

Fishing Vessels on the High Seas[52] also contain provisions which emphasize flag States' responsibilities, port States' measures and the importance of international cooperation for addressing unsustainable fishing practices. In respect of port States' measures, the Fish Stocks Agreement imposes a duty on States parties to take measures, in accordance with international law, to promote the effectiveness of subregional, regional and global conservation and management measures. The Fish Stocks Agreement also provides for subregional and regional cooperative enforcement schemes within RFMO/As that involve non-flag State enforcement, subject to certain safeguards (arts. 21 and 22).

104. Relevant non-binding instruments aimed at addressing IUU fishing include the 1995 FAO Code of Conduct for Responsible Fisheries, the 2001 International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing adopted under the Code of Conduct (see A/59/63 and Corr.1, paras. 53-85), and the FAO 2005 Model Scheme on Port State Measures to Combat Illegal, Unreported and Unregulated Fishing (see A/CONF.210/2006/1 and Corr.1, para. 275).

105. A variety of multifaceted and complementary measures have been adopted by States and by RFMO/As to combat IUU fishing (ibid., paras. 258-266, 268-273, 276-274 and 286-291). Such measures include MCS measures (such as boarding and inspection regimes, and so-called negative and positive lists of fishing vessels), and market or trade-related measures that aim to prevent fish or fish products derived from IUU fishing from reaching the market (see paras. 257-258 below). Another important tool is the investigation and prosecution by States of persons for violating conservation and management measures (see A/CONF.210/2006/1 and Corr.1, paras. 285-291). Recent proposals to address inadequate flag State control include the possible development within FAO of flag State performance criteria, as well as possible actions against vessels flying the flags of States not meeting such criteria (see paras. 250-251 below).

106. Port States have recently intensified their efforts both individually and collectively through RFMO/As to develop measures, including denying port services to vessels on RFMO/A lists of IUU fishing vessels (see A/62/260, paras. 116 and 120). FAO also decided to develop a legally binding instrument on minimum standards for port State measures, based on the Model Scheme (see A/62/66/Add.1, para. 117; see also paras. 253-254 below). FAO, IMO and ILO are cooperating in the development of instruments providing for the safety of fishing vessels and working conditions for fishers (see paras. 174 and 211 below). Also relevant is the development by IMO of security measures relating to non-SOLAS ships, including fishing vessels (see para. 120 below).

(g) Intentional and unlawful damage to the marine environment

107. Breaches of environmental laws and regulations can threaten maritime security in a variety of ways. The effects of such breaches can manifest in many forms, including as loss of marine habitats, loss of species and reduced fish catch, coral bleaching and decreased biodiversity, and can thus directly impact the social and economic interests of coastal States. This can lead to direct conflict, or exacerbate

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[52] For an overview of the Compliance Agreement, see A/59/63 and Corr.1, paras. 41-52.

other causes of conflict, such as poverty, migration, infectious diseases, poor governance and declining economic productivity.[53]

108. Not every breach may lead to a threat to maritime security, however, intentional and unlawful damage to the marine environment can be of such a scale that it threatens the security of one or more States[54] (see also para. 307 below). The link between organized crime and pollution has also become increasingly evident, as shown by work undertaken by INTERPOL.[55]

109. A number of international instruments provide for the protection and preservation of the marine environment and its biodiversity (see A/57/57, paras. 277-496, for an overview of relevant instruments). UNCLOS requires States to take all measures necessary to prevent, reduce and control pollution of the marine environment from any source (Part XII) and sets out the enforcement rights of flag, port and coastal States, which are subject to a series of safeguards (Part XII, sects. 6 and 7).

110. Discharges from ships are regulated by the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78). Dumping is specifically addressed by both UNCLOS (arts. 210 and 216) and the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972, and its 1996 Protocol (see also A/62/66, paras. 290-291).

111. A number of international instruments address harm to the environment in the context of military activities and conflicts. For example, parties to the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques undertake not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other party[56] (see also para. 69 above).

112. Numerous initiatives are taking place at the international level to combat intentional and unlawful damage to the marine environment. At its sixth ministerial

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[53] North Atlantic Treaty Organization, *The Environment and Security*, 2005, available from http://www.nato.int.

[54] In January 1991, Iraqi military forces released large quantities of crude oil into the Persian Gulf. The resulting oil spill, regarded as the worst in history, caused considerable damage to wildlife and marine ecosystems in the Persian Gulf. The Security Council, in resolution 687 (1991), reaffirmed that Iraq was liable under international law for any direct loss, damage (including environmental damage and the depletion of natural resources).

[55] INTERPOL Pollution Crimes Working Group, "*Assessing the links between organised crime and pollution crimes*", June 2006, available from www.interpol.int/Public/EnvironmentalCrime/Pollution/organizedCrime.pdf.

[56] Environmental modification techniques are "any technique for changing — through the deliberate manipulation of natural processes — the dynamics, composition, or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space" (art. II). Examples of phenomena that could be caused by the use of such techniques include: tsunamis; an upset in the ecological balance of a region; and changes in ocean currents (see Understandings regarding the Convention, at http://disarmament.un.org/TreatyStatus.nsf). A number of other instruments are also relevant in this context, including the Convention on Biological Weapons, the Chemicals Weapons Convention, and the Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-Bed and the Ocean Floor and in the Subsoil Thereof.

meeting, the Members of the Zone of Peace and Cooperation of the South Atlantic adopted the Luanda Final Declaration and the Luanda Plan of Action (see A/61/1019, annexes I and II), which encourage the Members of the Zone to "promote joint projects to explore existing institutional capacities to combat illegal spillages and dumping of toxic waste".[57] In the Black Sea region, a Vessel Traffic Observation and Pollution Information System Pilot Project was successfully completed and will become the basis for enhancing the capabilities of the region to trace illegal discharges. In the Baltic Sea, monitoring the enforcement of international rules by ships is being strengthened by a number of initiatives including an oil drift forecasting system integrated with information from the HELCOM automated information system. Further, in 2007, following arrangements with the European Maritime Safety Agency, satellite surveillance of the Baltic Sea has been extended with the aim of improving detection of illegal oil spills.[58] In the North Sea, States are conducting regular air surveillance operations, to inter alia, deter vessels and offshore installations from violating internationally agreed anti-pollution rules and standards (see www.bonnagreement.org/eng/html/welcome.html).

113. The sixteenth Organization for Security and Cooperation in Europe Economic and Environmental Forum will focus on "Maritime and inland waterways cooperation in the OSCE area: Increasing security and protecting the environment".[59] Aspects related to maritime security and safety have also been addressed in the framework of the Environment and Security Initiative which works to assess and address environmental problems that threaten or are perceived to threaten security, societal stability and peace, human health and/or sustainable livelihoods, within and across national borders in conflict prone regions. The Environment and Security Initiative has carried out assessments on the linkages between environment and security in South-Eastern Europe, the Southern Caucasus and Central Asia.[60] Environmental security is also one of the four themes of the Ocean Security Initiative. In that context, two regional conferences have been held for the Mediterranean and for the Wider Caribbean in 2005 and 2007, respectively (see http://www.acops.org and http://www.osi-int.org).

3. Current challenges in maritime security

114. Action is being taken by the international community at all levels to address threats to maritime security, however further action is required, in particular with regard to enhancing the effectiveness of the international legal framework; strengthening the implementation of maritime security measures; capacity-building and cooperation and coordination. Concerns related to the potential impacts of measures to improve maritime security also require attention. The economic, social and political factors which underpin many of the threats to maritime security, including poverty, conflict, poor governance and lack of capacity, are also important and should be addressed, although they are not exhaustively covered in the present chapter.

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[57] Contribution of the Department of Political Affairs of the Secretariat. See also para. 141 below.

[58] Contribution of HELCOM.

[59] Contribution of the Organization for Security and Cooperation in Europe.

[60] Ibid.; see also http://www.envsec.org.

(a) Enhancing the effectiveness of the international legal framework

115. Current efforts to enhance the effectiveness of the international legal framework relating to maritime security have focused on increasing participation in relevant international instruments, developing the legal framework to implement and enforce those instruments at all levels, elaborating additional international rules and regulations relating to maritime security, and strengthening the capacity of States.

116. Although some instruments, such as UNCLOS, already benefit from broad participation, other instruments relating to maritime security require further participation to enhance their effectiveness. The General Assembly has repeatedly called upon States to become party to UNCLOS and other instruments that are relevant to maritime security and to take measures to ensure their effective implementation. It is important that States wishing to become parties to maritime security instruments are provided with the assistance and resources required both to participate in, and to adopt measures to effectively implement their provisions.

117. In terms of implementation, it is important for States to put into place a national framework to implement and enforce applicable rules and standards contained in international instruments. In particular, States may enact legislation applicable to vessels flying their flag, regardless of their location. Coastal States would benefit from a legal framework that would allow them to intercept and board ships which threaten maritime security, to the extent allowed under international law, as well as to investigate and prosecute suspected offenders. Cooperation and coordination among legislators, national authorities involved in enforcing maritime security measures and private industry can also improve the effectiveness of legislation. Capacity-building can facilitate the establishment of a national legal framework.

118. Legislative guides and model laws, as well as training programmes for legislators and other forms of technical assistance, can also play an important role in encouraging the development of implementing legislation. In that regard, the role of international organizations, such as IMO, ILO and the United Nations Office on Drugs and Crime in preparing legislative guides, model laws and guidance on the implementation of maritime security instruments should be highlighted.

119. Efforts are also ongoing to further develop the international legal framework relating to maritime security. Some existing instruments have already been supplemented through additional protocols or regional agreements (see paras. 62, 64, 71 and 85 above). Some States have also concluded bilateral agreements to address threats to maritime security (see paras. 71 and 86 above).

120. New instruments are also being considered or developed (see paras. 62, 76 and 106 above). For example, IMO is developing non-binding guidelines on security arrangements for vessels which do not fall within the scope of SOLAS Chapter XI-2 and the ISPS Code (see MSC 83/28, at pp. 18-25).[61] The General Assembly has also urged States, in cooperation with IMO, to improve the protection of offshore installations by adopting measures related to the prevention, reporting and investigation of acts against installations and by implementing such measures

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[61] Contribution of IMO.

through national legislation to ensure proper and adequate enforcement (see General Assembly resolution 62/215, para. 62).

(b) Strengthening the implementation of maritime security measures

121. Strengthening the implementation of international instruments relating to maritime security remains a significant challenge facing the international community today. In its annual resolutions on oceans and the law of the sea and on sustainable fisheries, the General Assembly has repeatedly called upon States to effectively implement international instruments relating to maritime security (ibid., paras. 53, 67 and 76). In some cases, problems relating to implementation are the result of insufficient resources or capacity, and technical and financial assistance by States or international organizations is therefore required. In other cases, however, the level of implementation reflects the level of political commitment.

122. *Flag State implementation.* Flag States have a central role in the implementation of maritime security instruments and must ensure that they can exercise their responsibilities with respect to vessels entitled to fly their flag before they register a vessel and, in the context of high seas fishing, before they authorize the use of a vessel for fishing on the high seas.[62] The General Assembly has urged flag States without an effective maritime administration and appropriate legal frameworks to establish or enhance the necessary infrastructure, legislative and enforcement capabilities to ensure effective compliance with, and implementation and enforcement of, their responsibilities under international law and, until such action is taken, to consider declining the granting of the right to fly their flag to new vessels, suspending their registry or not opening a registry. It has called upon flag and port States to take all measures consistent with international law necessary to prevent the operation of substandard vessels (ibid., para. 78). Also relevant are the considerations and observations of the Ad Hoc Consultative Meeting of senior representatives of international organizations, convened by IMO in 2005 on the subject of the "genuine link", including on the potential consequences of non-compliance with the duties and obligations of flag States (see A/61/160, annex).

123. The process of vessel registration is a key component in the implementation of flag State responsibilities. It presents an opportunity for flag States to verify compliance with national and international laws and to prevent the flagging of vessels with a history of non-compliance.[63] In addition, information collected during the registration process is needed by States during enforcement actions against ships used in illegal activities and any subsequent prosecution, and may also be used to increase the accountability of owners and operators of ships. Another important issue is the completeness of registration lists, which sometimes do not include small vessels or fishing vessels, which are increasingly regarded as a security concern.

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[62] UNCLOS, art. 94. The United Nations Fish Stocks Agreement requires States parties to maintain a national record of fishing vessels authorized to fish on the high seas (art. 18).

[63] In the fisheries context, a comprehensive global record of fishing vessels has been proposed to assist in combating the practice of reflagging. As regards possible measures to counteract non-compliance, the IMO Council noted that suspension of registration could be counterproductive and lead to re-registration with countries not properly fulfilling the "genuine link" requirements in UNCLOS (see A/62/66, para. 58).

124. Flag States may seek to enhance their ability to implement international obligations by engaging the cooperation of other States. For example, it may be difficult for a flag State to collect sufficient evidence and other information to prosecute or take administrative action to punish illegal acts committed outside the vicinity of its shores without cooperation from other States (see, e.g., art. 217 (5) of UNCLOS). Some international instruments provide for the possibility of flag States consenting to the boarding of ships flying their flag by other States (see paras. 69, 84, 85, 92 and 103 above). Such consent can be given on a case-by-case basis, or in certain circumstances in advance, with or without conditions.

125. *Port State control*. Port States play an important complementary role in enhancing maritime security since ships, cargo and crewmembers are most accessible to government authorities while in port. However, the ability of port States to take effective measures to enhance maritime security depends, inter alia, on the legislative and regulatory framework, enforcement capacity, and cooperative arrangements with other States. Information-sharing between States can also assist port States in determining when vessels or individuals suspected of prohibited activities are entering or present in a port. Lack of effective port State control can lead to the emergence of "ports of convenience",[51] where, for example, persons and goods can be smuggled easily and IUU fishing operators can land catch and trans-ship catch because enforcement controls are limited (see para. 252 below).[64] The sharing of experiences and best practices through the issuance of guidelines and training programmes on procedures for port State measures should also be encouraged (see paras. 195-196 below).

126. In establishing and implementing port State measures, due regard should be given to their effect on shipping and international commerce, as well as the health, safety and welfare of seafarers. Maritime security measures in ports should be implemented in a fair and non-discriminatory manner so as to retain their legitimacy and to minimize the disruption to trade.

127. *Coastal State implementation*. UNCLOS and other instruments provide for the legislative and enforcement jurisdiction of coastal States in the territorial sea, and with respect to some specific threats to maritime security also in the contiguous zone and EEZ. However, some developing States lack the capacity to exercise their jurisdiction in that respect, which can have serious implications for maritime security (also see paras. 133-137 below). For example, coastal States, particularly developing States, that are unable to monitor and control fishing activities in areas within their national jurisdiction may inadvertently create an environment in which IUU fishing can flourish. Also ships suspected of committing illegal acts on the high seas or in the EEZ of a coastal State can attempt to escape enforcement by entering the territorial sea of a State without the capacity to enforce.

128. Information-sharing, including on lists of vessels previously engaged in illegal activities, can assist States in identifying which vessels to monitor. Likewise, joint patrols or enforcement activities, such as those envisioned under the proposed MOWCA integrated subregional coast guard network, can also improve implementation and enforcement (see para. 62 above). It is expected that MOWCA States will achieve more efficient enforcement at reduced costs through joint patrols

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[64] Port State measures with respect to IUU fishing and in the context of maritime safety and environmental protection are described in paras. 106, 252-254 (IUU fishing) and 195-196 of the present report.

over a large tract of coastline and by allowing participating States to continue enforcement actions into the territorial sea of another participating State. MOWCA joint patrols will be aimed at combating a wide-range of maritime security concerns, including piracy and armed robbery against ships, pollution, illegal fishing and clandestine migration (see A/61/63/Add.1, para. 62).

129. Where the lack of an agreement on the delimitation of maritime zones between States could hamper the implementation and enforcement of maritime security measures, flexible cooperative approaches on a bilateral or regional basis can be used to address common threats without prejudicing the rights of interested States.

130. *Assessing implementation.* Assessments are important for strengthening the implementation of maritime security measures. They also provide a useful way of identifying obstacles to effective implementation. The level of implementation can frequently be gauged from reports by States and international organizations. Information provided by non-governmental organizations can also be useful in that regard. Mandatory reporting, such as that required under several Security Council resolutions, can also form the basis for such assessments. For example, the Counter-Terrorism Committee Executive Directorate focuses on monitoring implementation of Security Council resolution 1373 (2001) by Member States. It carries out assessments of reports submitted by Member States and conducts in-country visits, with the approval of the State in question, with a view to assessing the need for technical assistance or other measures to assist with the implementation of resolution 1373 (2001), and to propose solutions in that regard.[65] It further contributes by identifying and promoting relevant international best practices, codes and standards that States may wish to adopt in order to ensure effective implementation of the resolution.

131. Voluntary inspections and audits can also play an important role in assessing the level of implementation of relevant instruments (see also paras. 193-194 below). Such assessments can indicate where performance can be improved, and assist in the targeting of capacity-building measures. For example, IMO was recently requested to consider expanding the scope of its Voluntary Member State Audit Scheme to include maritime security-related matters and other functions not presently covered (IMO Assembly resolution A.975(24)). Apart from the possible development of criteria for assessing the performance of flag States (see paras. 105 and 250 of the present report), it has been suggested that FAO also consider the development of an audit scheme in respect of fisheries management obligations of States in their capacities as flag, port, coastal and market States.[66]

132. Finally, in the implementation of maritime security measures, it is also important to take into account the safeguards that are incorporated in several instruments to protect the interests of individuals, entities and States. In the context of maritime security, those safeguards reflect the need to balance efforts to address threats to maritime security and preserve the rights and interests of coastal and flag States in the various maritime zones, ensure the safety of the vessel and the persons aboard, and protect the rights of people under international law (see, for example, paras. 69, 92, 103, 109, 153 and 156 of the present report).

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[65] Contribution of the Counter-Terrorism Committee Executive Directorate.

[66] Report of the second session of the Joint FAO/IMO Ad Hoc Working Group on Illegal, Unreported and Unregulated Fishing and Related Matters, Rome, 16-18 July 2007 (IMO document MSC 83/INF.12, annex).

(c) Strengthening capacity-building

133. As mentioned above, States require assistance and resources to participate in maritime security instruments and to adopt the measures to effectively implement their provisions. While there are already a number of initiatives in place to improve the capacity of States, there is a continuous need to assist developing States to take measures related to maritime security, given the costs involved and the need for specialized knowledge or expertise, equipment and technology. Increased and more targeted capacity-building initiatives can place all States in a position to better contribute to the maintenance of maritime security. In that respect, the General Assembly has repeatedly urged States to take action in relation to capacity-building, including in the context of maritime security (see, e.g., resolution 62/215, para. 62).

134. Also important is the need for States to have the necessary law enforcement capacity. Lack of enforcement capacity and resources are major concerns for developing countries. Financial assistance and transfer of equipment or technology can improve their capacity. Sometimes, flag States do not have the necessary equipment or resources to monitor and control their vessels and thus ensure compliance with their international obligations. In that regard, modern technology can significantly improve the availability and accessibility of information on those vessels. Port States face economic and technological hurdles to effectively search cargo, and coastal States require specialized equipment and resources to monitor vessels, including high-speed boats, to identify, track and apprehend ships suspected of contravening laws and regulations. Small-island developing States in particular need improved capacity to monitor and control foreign fishing vessels. IUU fishing vessels tend to gravitate to coastal areas where enforcement capacity is limited (see paras. 101 and 127 above).[67] Lack of resources may lead some coastal States to police certain threats at the expense of others.

135. Assistance may be provided either through multilateral or bilateral channels. Some recent examples of bilateral assistance include the Pacific Patrol Boat programme which was established to improve the surveillance capacity of Pacific Island countries (see A/62/260, paras. 175-176); and the provision by the United States of equipment and patrol boats to Indonesia to support maritime defence and security in the South-East Asian region.[68]

136. Lack of expertise and specialized knowledge can also be addressed through training and other capacity-building programmes, preparation of policy guides, and provision of expert advice and other forms of technical assistance. For example, the World Bank, the World Customs Organization, and other international organizations are considering the development of a toolbox on supply chain security to inform government authorities and industry of developments in the field. The IMO Integrated Technical Cooperation Programme is one source of technical assistance and capacity-building for developing States in respect of the measures required under SOLAS Chapter XI-2 and the ISPS Code. As part of its activities, IMO has convened regional seminars on maritime security with the participation of other

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[67] Indonesia recently reported that, owing to inadequate law enforcement resources, losses from illegal fishing in waters off North Sumatra Province were estimated to be worth 875 billion Indonesian rupiah each year (Kompas Cyber Media, 22 January 2008, www.kompas.com).

[68] "US gives 15 patrol boats to Indonesian police" *The Jakarta Post* website, 17 January 2008; "Indonesian government to install seven US radars in Makassar Strait", Antara news agency, 22 January 2008.

relevant organizations.[69] ILO currently offers training programmes/workshops on the implementation of the ILO/IMO Code of Practice on Security in Ports (2004).[70] Technical assistance is also provided by the United Nations Office on Drugs and Crime to combat illicit traffic in narcotic drugs and psychotropic substances, terrorist acts involving shipping, offshore installations and other maritime interests, and trafficking in persons, including through its publication of the Toolkit to Combat Trafficking in Persons, and through the United Nations Global Initiative to Fight Human Trafficking.

137. An integrated approach to maritime security is still another important means of strengthening the capacity of States. For example, joint patrols or enforcement activities at subregional or regional levels with respect to more than one maritime security threat can achieve more efficient enforcement at reduced costs (see paras. 128 and 139 of the present report).

(d) Improving cooperation and coordination relating to maritime security

138. Improving cooperation at national and international levels can play a vital role in addressing the challenges of maritime security, including with respect to the implementation and enforcement of international instruments and enhancing the capacity of States. In the context of its resolutions on oceans and the law of the sea, the General Assembly has consistently urged States to take measures to improve cooperation at all levels, including with respect to maritime security.

139. Ad hoc or formal cooperation mechanisms can facilitate the implementation of international instruments and at the same time minimize associated costs, by inter alia, allowing the sharing of information, resources and expertise. For example, the member States of the Organization for Eastern Caribbean States (in collaboration with Barbados) effect their maritime security interventions through the Regional Security System, which is an international agreement for the defence and security of the Eastern Caribbean region. The System promotes cooperation among the Member States in combating threats to national security, the prevention and interdiction of illicit traffic in narcotic drugs, immigration control, fisheries protection, pollution control, search and rescue, and in the protection of offshore installations and EEZ. The System also provides training for joint land and maritime operations, disaster relief, anti-drug operations and anti-terrorism and intelligence gathering and sharing.[71] ASEAN member States engage in broad-based cooperation on maritime security issues and are considering the establishment of an ASEAN maritime forum, to exchange ideas on maritime security issues and broad cross-cutting issues such as environmental protection, IUU fishing, smuggling and maritime transportation. They have highlighted the need for a coordinated approach including cooperation between Government agencies and private sectors.[72]

140. With respect to high seas fisheries, an important development is the establishment of the voluntary International Monitoring, Control and Surveillance Network, which seeks to enhance cooperation and information collection and

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[69] Regional seminars were held in Senegal in October 2006, and in Bahrain in April 2007. See MSC 82/24, paras. 17.19-17.23, and A/62/66/Add.1, para. 96.

[70] Contribution of ILO.

[71] Contribution of the Organization of Eastern Caribbean States.

[72] Member States have also underlined the importance of addressing the root causes of the threats; contribution of ASEAN.

exchange between national institutions involved in monitoring, control and surveillance activities. The Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia and its Information Sharing Centre provide a recent example of information-sharing to combat piracy and armed robbery against ships.

141. Joint patrols can further enhance security and reduce the resources required by States. Examples include the joint patrols by North Atlantic Treaty Organization States; by Frontex and several African States, and the proposed MOWCA integrated coast guard network (see paras. 62 and 128 above). There are numerous examples of other joint naval exercises or patrols at regional or bilateral levels.[73] Such joint activities not only address particular threats to maritime security, but also act as confidence-building measures, which improve cooperation. Maritime zones of peace have in some cases also served as platforms for regional cooperation on non-traditional maritime security issues. The Luanda Plan of Action (see para. 112 above), for example, inter alia, calls for greater regional cooperation and joint action in the pursuit of crime prevention and the combating of illicit activities such as drug trafficking, the illicit trade in small arms and light weapons as well as other transnational organized crimes, and piracy. It also calls for measures to improve flag State control, protect and promote the human rights of seafarers, combat illegal dumping and address IUU fishing.[74]

142. At the national level, improving coordination between relevant government authorities may be one of the most cost-effective ways to facilitate the effective development and implementation of maritime security measures. For example, improving coordination between national law enforcement agencies and legislative/regulatory agencies can facilitate the development of more efficient rules and regulations, and ensure the appropriate distribution of resources and targeting of measures. In addition, cooperation between the different law enforcement agencies and armed forces involved in implementing maritime security initiatives assists in the efficient use of resources and improves the overall efficacy of the enforcement process.

143. International organizations also play an important role in enhancing maritime security. A wide range of international organizations assist in the development and implementation of maritime security instruments, as well as in capacity-building initiatives, in conformity with their respective mandates.

144. Cooperation and coordination between international organizations is important to avoid duplication of work, pool resources, expertise, reduce costs, and achieve benefits from organization specialization. A number of collaborative initiatives are ongoing in that regard, and communication between international organizations active in the area of maritime security has significantly increased.

145. With respect to fisheries, cooperation and coordination between RFMO/As is particularly important to combat IUU fishing in view of the multijurisdictional nature of those activities. Significant cooperative efforts have already been taken,

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[73] For example, Algerian and French naval forces carried out joint surveillance and maritime security exercises from 15 to 29 January 2008. "French, Algerian navies carry out joint exercises in the Mediterranean", Agence France-Presse News Agency, Paris, 31 January 2008.

[74] See Surya Subedi, *Land and Maritime Zones of Peace in International Law* (Oxford, Clarendon Press, 1996).

for example, through mutual recognition of lists of IUU fishing vessels and the creation of a common list of such vessels (see General Assembly resolution 62/177, para. 44). The General Assembly has repeatedly called on States to strengthen cooperation in that regard by establishing RFMO/As in currently unregulated areas of the high seas,[75] and by efforts to strengthen and modernize the mandates of, and measures adopted by, RFMO/As.[76]

146. While much progress has been made to strengthen cooperation and coordination, further concerted efforts are required to strengthen cooperation among States at all levels, and to ensure better linkages between different agencies and organizations addressing different sectors at the national, regional and global levels.

(e) The potential impact of measures to improve maritime security

147. Maritime security measures can impact individuals, States and the maritime industry in different ways. The present subsection will examine some of these impacts from economic, humanitarian and environmental perspectives.

(i) Economic impact

148. The introduction of measures to address threats to maritime security entails both benefits and costs for States, industry and ultimately consumers. Direct costs can arise from new public infrastructure, equipment, investment in technology, and additional staffing and training needed to address maritime security issues. Indirect costs may include delays in maritime transport and disruption of trade flows owing to increased transport and transaction costs.[77] However, maritime security measures may also bring direct and indirect benefits, which offset some of the costs of the security measures, including increases in the efficiency of ports and supply-chain processes, and lower costs in terms of insurance and prevention of theft.[78] The costs of failing to address the relevant threat are difficult to estimate.

149. Studies on measures introduced to enhance maritime transport and supply-chain security may provide an indication of the potential costs of maritime security measures. For example, the global costs of implementing the ISPS Code for ports are estimated to range between approximately US$1.1 billion to $2.3 billion initially, and between $0.4 billion and $0.9 billion annually thereafter.[79] The compliance burden on ship operators is estimated to be at least $1.2 billion initially and $0.73 billion annually thereafter.[80] The impacts of the Code on the costs of

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[75] For details of efforts to establish new RFMO/As, see A/62/66/Add.1, paras. 131-134.

[76] Outcome of the Review Conference on the United Nations Fish Stocks Agreement, New York, 22-26 May 2006 (A/CONF.210/2006/15), annex, para. 32; and General Assembly resolution 61/105, paras. 66 and 70-75.

[77] Organization for Economic Cooperation and Development, "The economic consequences of terrorism, 2002", Economics Department working paper (ECO/WKP (2002)20).

[78] Contribution of the World Bank. See also Organization for Economic Cooperation and Development report, note 24 above, at p. 55.

[79] United Nations Conference on Trade and Development, *Maritime Security: ISPS Code Implementation, Costs and Related Financing*, 2007 (UNCTAD/SDTE/TLB/2007/1), available from www.unctad.org.

[80] Organization for Economic Cooperation and Development report, note 24 above, at p. 38.

cargo handling, however, are estimated to be limited to cents per ton of cargo and to a few dollars per twenty-foot equivalent (TEU Standard) container.[81]

150. A study by the Economic Commission for Latin America and the Caribbean identified six aspects critical to port security[82] and estimated costs and savings from the implementation of these measures on the supply chain in the Latin American region. It concluded that the measures would add $158.82 to the cost of a container of food products, but result in an overall benefit per container ranging from $614.85 to $84 once savings resulting from the improved process and infrastructure were taken into account.[83]

151. The World Customs Organization recently adopted a resolution in which it expressed concerns regarding a new United States requirement, effective July 2012, that all containerized cargoes must undergo X-ray scanning in foreign ports before being shipped to the United States, including that 100-per cent scanning would be detrimental to world trade, would introduce a significant non-tariff trade barrier, would result in unreasonable delays, increased storage demands and port congestion, and would present severe international trading difficulties.[84]

152. Implementing security measures may be costly, however, failing to implement such measures may also have broader economic consequences, such as decreasing the competitiveness of trade and transportation.[85] Developing countries in particular bear a heavy financial burden, which can be addressed in part through capacity-building measures. Increasing the capacity of such States to implement measures, including through financial and technical assistance, can reduce that burden on developing States and improve maritime security globally (see also paras. 133-137 above).

(ii) Impact on people

153. Significant attention has been given in international forums to the need for States to observe international human rights when measures are being taken to combat all threats to maritime security. For example, with respect to terrorist acts, the High-level Panel on Threats, Challenges and Change recommended that better instruments should be developed for global counter-terrorism cooperation within a legal framework that is respectful of civil liberties and human rights (see A/59/565, para. 148). The need for States to ensure that measures taken to combat terrorism comply with other obligations under international law, including human rights, refugee and humanitarian law, has also been recognized by the Security Council,

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[81] Contribution of the World Bank.

[82] Operational model of the port, controls on access, presence of non-intrusive detection equipment, existence of cut-off mechanisms, programming of arrivals and departures of goods, and state of the customs controls. Sgut, Martin. "*Efectos económicos de las nuevas medidas de protección maritime y portuaria*", CEPAL-SERIE Recursos naturales e infraestructura, n. 117 (United Nations publication, Sales No. S.06.II.G.140), available from www.eclac.org/publicaciones/xml/7/27037/lcl2615e.pdf.

[83] Based on the value of the container.

[84] Joint Resolution of the Customs Cooperation Council's Policy Commission and the Private Sector Consultative Group concerning the World Customs Organization SAFE Framework of Standards and the United States legal requirements for 100-per cent container scanning at export, Almaty, 6 December 2007.

[85] Contribution of the United Nations Conference on Trade and Development.

including in resolution 1624 (2005), and most recently by the General Assembly in its resolution 62/159.

154. The need to protect human rights when taking measures to address threats to maritime security is also explicitly recognized in several international instruments, including the 2005 Protocol to the SUA Convention and the Migrants Protocol (see paras. 69 and 92 above).

155. *Impact on seafarers*. Seafarers can be directly exposed to threats to maritime security, including acts of piracy and armed robbery against ships, and may be called upon to combat such threats. Seafarers have, for example, been described as "partners" in the fight against terrorism.[86]

156. States have been urged to take into account the human element, the need to afford special protection to seafarers, and the critical importance of shore leave when implementing the provisions of the ISPS Code, which safeguards the protection of the fundamental rights and freedoms of seafarers as set out in international instruments. The right of seafarers to shore leave is specifically recognized in the Convention on Facilitation of International Maritime Traffic, which prohibits States from requiring seafarers to obtain a visa or a special permit for the purpose of shore leave. However, in some cases foreign seafarers are still required to obtain a visa and at times, the cost or procedural requirements for obtaining such a visa make it prohibitive or difficult in practice to obtain one.[87] The Seafarers' Identity Documents Convention (Revised) 2003 (ILO Convention No. 185), aims to strengthen port security by ensuring that seafarers have an identity document which provides for their "positive verifiable identification" to facilitate their movement. In that regard, widespread ratification and effective implementation of this Convention would serve to improve its effectiveness and enhance maritime security.[88]

157. Increased restrictions on seafarers, imposed in response to concerns that criminals and terrorists may gain access to ships by posing as seafarers, may negatively affect their welfare.[89] In that regard, IMO published guidance on shore leave and access to ships under the ISPS Code (see MSC/Circ.1112), which emphasized the importance of port facilities finding a balance between the needs of security and the needs of the ship and its crew. It highlighted that a singular focus on the security of the port facility was contrary to the letter and spirit of the ISPS Code and would have serious consequences for the international maritime transportation system.

158. There are related concerns that the consequences of implementation of the ISPS Code for seafarers, including increased responsibility and workload, inadequate training and lack of commensurate increase in pay, has had an adverse impact on crew performance and well-being.[87] As a consequence of those impacts, the attractiveness of seafaring as a profession may be eroding and the growing problem of recruitment and retention of qualified personnel may negatively affect

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[86] See "IMO 2004: Focus on Maritime Security", available from www.imo.org.

[87] Contribution of ILO. International Transport Workers' Federation, *Out of sight, out of mind: Seafarers, Fishers & Human Rights*, June 2006, p. 34.

[88] Contribution of ILO. The Convention entered into force in February 2005. See also A/60/63, para. 87.

[89] International Transport Workers' Federation report, note 87, at pp. 33-34.

the security and safety of international shipping in the long run (see also para. 217 below).

(iii) *Impact on the marine environment*

159. Measures to improve maritime security may impact the marine environment in a variety of ways. The use of acoustic devices and techniques to detect, track and monitor vessels may create disturbances in the marine environment and have adverse impacts on marine living resources.[90] In addition, the testing of military and other safety and security devices at or beneath the ocean surface as well as the unsafe disposal of warships and in particular decommissioned nuclear-propelled submarines, are also causes for concern.

160. UNCLOS requires States, inter alia, to keep under surveillance the effects of activities under their control in order to determine whether these activities are likely to pollute the marine environment (arts. 204 and 206). While the provisions of UNCLOS regarding the protection and preservation of the marine environment do not apply to any warships and other government ships operated for non-commercial purposes, each State must nevertheless ensure, by the adoption of appropriate measures not impairing operations or operational capabilities of such vessels or aircraft, that those vessels or aircrafts act in a manner consistent with the Convention (art. 236).

C. Maritime safety

161. Maritime safety is principally concerned with ensuring safety of life at sea, safety of navigation, and the protection and preservation of the marine environment. The shipping industry has a predominant role in that regard and many conditions must be fulfilled before a vessel can be considered safe for navigation: vessels must be safely constructed, regularly surveyed, appropriately equipped (e.g., with nautical charts and publications) and adequately manned; crew must be well trained; cargo must be properly stowed; and an efficient communication system must be on board. Efforts to improve maritime safety in that industry are particularly important given its significance to world trade, economic development and poverty alleviation.[91]

162. Safe and efficient navigation also depends on safe, secure and crime-free navigational routes. Coastal States have an important role in that regard. In the event of a maritime casualty or incident, an effective search and rescue regime is crucial to ensure safety of life at sea. The control of pollution arising from such casualties or incidents depends on efficient emergency response capabilities and effective cooperation among States.

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[90] See also, inter alia, A/62/66/Add.1, paras. 190-195. The General Assembly has encouraged studies and consideration of the impacts of ocean noise on marine living resources in its resolution 62/215, para. 120 (see also para. 301 below).

[91] The International Chamber of Shipping/International Shipping Federation estimated that over 90 per cent of world trade was carried by the international shipping industry (see www.marisec.org).

163. The following section provides an overview of the international legal framework for maritime safety[92] and describes recent developments and current challenges.

1. Overview of the international legal framework

164. A comprehensive body of global rules and regulations has been developed to provide for maritime safety within the overall legal framework provided in UNCLOS. The Convention sets out the rights and duties of States in respect of maritime safety, in particular the duties of flag States.

165. Activities relating to maritime safety have been regulated over time within the framework of a number of United Nations organizations, including IMO, in particular through MSC, ILO, the International Hydrographic Organization and IAEA.

166. Global conventions developed by IMO relating to maritime safety include SOLAS, MARPOL 73/78, the Convention on the International Regulations for Preventing Collisions at Sea, 1972, the International Convention on Load Lines, 1966 (Load Lines Convention), and the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers. Those conventions have limited application to fishing vessels, owing to exceptions or size requirements. Instruments which apply to fishing vessels and the training of fishers, such as the 1993 Torremolinos Protocol relating to the 1977 Torremolinos International Convention for the Safety of Fishing Vessels and the International Convention on Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel, 1995, have yet to enter into force.

167. There are several global conventions governing labour conditions of seafarers, such as the Merchant Shipping (Minimum Standards) Convention. The 2006 Maritime Labour Convention consolidates and updates 68 international labour standards relating to seafarers. Once in force, it will be the "fourth pillar" of the international regulatory regime for quality shipping (see A/61/63, paras. 77-79). With respect to fishers, the Work in Fishing Convention, 2007 (ILO Convention No. 188), will provide for decent working and living conditions for fishers and the safe operation of fishing vessels once it enters into force (see also A/62/66/Add.1, paras. 77-84).

168. A number of instruments are relevant to the transport of dangerous goods. Carriage requirements for radioactive material are set out in the International Maritime Dangerous Goods Code and the International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High Level Radioactive Wastes on Board Ships, which are both mandatory under SOLAS, and the IAEA Regulations for Safe Transport of Radioactive Material.

169. Global conventions containing measures for the control of marine pollution owing to maritime casualties include the International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969, and its Protocol of 1973 relating to Intervention on the High Seas in Cases of Marine

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[92] The present section does not provide an exhaustive review of all relevant binding and non-binding instruments relating to maritime safety. For further information see "Implications of the United Nations Convention on the Law of the Sea for the International Maritime Organizations" (LEG/MISC.5), available from www.imo.org. See also para. 38 above.

Pollution by Substances other than Oil, the International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990, and its Protocol of 2000 on Preparedness, Response and Cooperation to Pollution Incidents by Hazardous and Noxious Substances and the International Convention on Salvage, 1989. There are also several instruments which have been adopted at the regional level regarding cooperation in combating pollution by oil and other substances in cases of emergency.[93]

170. Several global conventions also specifically address search and rescue and the provision of assistance to persons in distress, including SOLAS, the SAR Convention, 1979, and the International Convention on Salvage.

2. Recent developments relating to maritime safety

171. Action is being taken by the international community at all levels to improve maritime safety and the following section will review recent developments in that regard. Some aspects of maritime safety have not been described in this section (e.g., communications, safety zones around offshore installations and wreck removal) owing to space limitations or to coverage in previous reports (A/58/65, A/62/66 and Add.1).

(a) Safety of ships

172. The generally accepted international regulations, procedures and practices on ship construction, equipment and seaworthiness are contained in IMO instruments, including SOLAS, the Load Lines Convention, and MARPOL 73/78. IMO has been developing goal-based new ship construction standards to ensure that hull standards developed by classifications societies and other recognized organizations conform to safety goals and functional requirements established by IMO. Draft amendments to SOLAS providing for the mandatory application of the goal-based standards to bulk carriers and oil tankers are currently under development and are scheduled for adoption in 2009 together with associated guidelines. IMO has also agreed on a work plan for the further development of goal-based standards (MSC 8/28, paras. 5.42-5.77).

173. IMO completed a comprehensive review of the safety of passenger ships and the resulting amendments to SOLAS, which place more emphasis on the prevention of a casualty from occurring, and the design of future passenger ships for improved survivability, are expected to enter into force in 2010. MSC has agreed to develop mandatory performance standards for recovery systems for all types of ships for adoption in 2012. In response to the loss of life on board the passenger ferry, *al-Salam Boccaccio 98*, which capsized in the Red Sea after catching fire, MSC is expected to adopt this year amendments to SOLAS to prevent the build-up of firefighting water in enclosed ro-ro spaces (ibid., paras. 3.28 and 25.18-25.20).

174. Since the Torremolinos Protocol is not in force and only applies to fishing vessels of 24 metres in length and over, representing approximately 4 per cent of the

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[93] See, for example, the protocols to some of the Regional Seas Conventions at http://www.unep.org/regionalseas.

world's fishing fleet,[94] FAO, IMO and ILO have developed non-binding instruments relating to safety of fishing vessels, including vessels of less than 24 metres in length.[95] It has been suggested that FAO should also develop guidelines on best practices for safety at sea and that the FAO Committee on Fisheries consider developing an international plan of action on the subject within the framework of the Code of Conduct for Responsible Fisheries.[96]

(b) Training of crew, labour conditions and fair treatment

175. *Training and certification.* Given the importance of the human element in safety management and, in particular, the need to maintain a global standard for training for seafarers, IMO has regularly revised and updated the Standards of Training, Certification and Watchkeeping for Seafarers Convention. In 2007, MSC agreed to undertake a comprehensive review of that Convention, expected to be completed in 2010, to take into account new and innovative training methodologies and to ensure that this Convention meets the new challenges facing the shipping industry.[61] With respect to fishers, FAO, IMO and ILO have developed Guidance on Training and Certification of Fishing Vessel Personnel in view of the fact that the Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel Convention is not in force.

176. *Labour conditions and fair treatment.* Concerns have been raised over poor labour conditions on board some ships, incidents of abandonment of seafarers, the criminalization and detention of seafarers following maritime accidents, and restrictions on shore leave (see paras. 155-158 above) (see A/60/63/Add.2, para. 28). Poor conditions and a lack of respect for contractual obligations have negative consequences for the morale of seafarers thus creating an accident-generating environment. Promoting decent working conditions, the fair treatment of seafarers and fishers and a safe working environment is essential to maritime safety.

177. The Maritime Labour Convention, 2006, covers all of the elements necessary to achieve decent work for seafarers and introduces a system for certification that the working conditions on a ship concerned meet the requirements of the Convention. The Convention also establishes a comprehensive enforcement and compliance system which builds on existing regional port State arrangements. The Work in Fishing Convention, 2007, sets out minimum requirements for fishers' working conditions on fishing vessels and includes provisions for both flag State and port State enforcement[70] (see also A/61/63, paras. 77-79; and A/62/66/Add.1, paras. 78-84). Once in force, both the Maritime Labour Convention and the Work in Fishing Convention will significantly improve the labour standards for seafarers and

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[94] At the second session of the Joint FAO/IMO Ad Hoc Working Group on Illegal, Unreported and Unregulated Fishing and Related Matters, FAO and IMO discussed cooperative efforts to facilitate the entry into force of the Torremolinos Protocol and the Standards of Training, Certification and Watchkeeping for Seafarers Convention (supra note 66). MSC in 2007 agreed that IMO should, in consultation with FAO, explore options suggested by the Joint Working Group in that regard (MSC 83/28, para. 15.44).

[95] Contribution of FAO. See the revised Code of Safety for Fishermen and Fishing Vessels, 2005, and the Voluntary Guidelines for the Design, Construction and Equipment of Small Fishing Vessels, 2005. New standards are also being developed for decked fishing vessels of less than 12 metres in length and undecked fishing vessels.

[96] FAO, *Report of the 27th session of the Committee on Fisheries, 5-9 March 2007, FAO Fisheries Report,* No. 830 (FIEL/R830(En)), para. 82.

fishers and should thus have a positive impact on maritime safety.[97] The General Assembly has encouraged States to become parties to those Conventions in its resolution 62/215.

178. The Guidelines on fair treatment of seafarers in the event of a maritime accident (IMO document LEG 91/12, annex 2), adopted by IMO and ILO in 2006, recognize that seafarers require special protection and are intended to ensure that seafarers are treated fairly following a maritime accident and during any investigation or detention by public authorities, and are detained no longer than necessary (see also A/61/63/Add.1, paras. 51-53). In 2007, the IMO Legal Committee agreed that the Joint IMO/ILO Ad Hoc Expert Working Group on Fair Treatment of Seafarers should be reconvened to monitor the implementation of the Guidelines and that it would be appropriate to gain experience with the Guidelines before considering any revisions to them (see IMO document LEG 93/13, para. 5.9).

179. Measures to address incidents of abandonment include the establishment, in 2005, of a database on reported incidents (see http://www.ilo.org/dyn/seafarers/seafarersBrowse.Home?p_lang=en). At its meeting in February 2008, the Joint IMO/ILO Ad Hoc Expert Working Group on Liability and Compensation regarding Claims for Death, Personal Injury and Abandonment of Seafarers committed itself to long-term mandatory solutions to the issues under its consideration. The Joint Working Group is scheduled to meet again in June 2008.

(c) Transport of dangerous goods

180. The International Maritime Dangerous Goods Code is continuously being updated by IMO to accommodate new dangerous goods and to harmonize it with the United Nations Recommendations on the Transport of Dangerous Goods, which sets the basic requirements for all transport modes. The MSC will consider amendments to the Code in 2008 (MSC 84/3/2).

181. At the 51st session of the IAEA General Conference, in September 2007, the Conference noted progress in the implementation of the Action Plan on the Safety of Transport of Radioactive Materials.[98] It recognized concerns over the potential for damage in the event of an accident or incident during the maritime transport of radioactive materials, including pollution of the marine environment,[99] and stressed the importance of having effective liability mechanisms in place to insure against harm to human health and the environment as well as actual economic loss owing to an accident or incident. The Conference welcomed the practice of some shipping States and operators of providing timely information and responses to coastal States in advance of shipments for the purpose of addressing safety and security concerns, including emergency preparedness. It also welcomed discussions at the bilateral level between relevant shipping and coastal States on issues of mutual concern in

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[97] The ILO has adopted a five-year action plan for the ratification and implementation of the Maritime Labour Convention (contribution of ILO).

[98] "Measures to strengthen international cooperation in nuclear, radiation and transport safety and waste management", IAEA document GC(51)/RES/11.

[99] Concerns have also been expressed in the Communiqué issued by the Conference of Heads of Government of the Caribbean Community at the conclusion of the seventeenth intersessional meeting of the Conference, 9-10 February 2006, Port of Spain, available at www.caricom.org, and the Communiqué of the thirty-seventh Pacific Islands Forum, Fiji, 24-25 October 2006 (A/61/558, annex).

relation to the safe maritime transport of radioactive materials. The Conference commended those Member States that have made use of the IAEA appraisal service and encouraged them to put into effect the resulting recommendations and suggestions. It also encouraged other States to avail themselves of the IAEA appraisal service.

182. IAEA expects to conclude in 2008 the updating of its inventory of radioactive materials entering the marine environment, which serves as the basis for radiological impact assessment. With a view to addressing the challenge of denials of shipment of radioactive material (see A/61/63, para. 63), the IAEA set up an International Steering Committee; the Committee developed a comprehensive international action plan, which includes activities that would significantly reduce cases of denials of shipment.[100]

183. The General Assembly addressed the transport of radioactive materials in paragraphs 58 and 59 of its resolution 62/215.

(d) Safety of navigation

184. Safe and secure routes for navigation and the availability of accurate and adequate hydrographic survey coverage and up-to-date nautical information are critical for the safety of navigation and life at sea, as well as the protection and preservation of the marine environment (see also para. 215 below).

185. *Hydrographic surveying and nautical charting*. Hydrographic surveys and nautical charting play a crucial role in identifying dangers to navigation and providing information to develop measures required to improve and ensure safe navigation. In light of technological improvements in the equipment and techniques used for hydrographic surveys, the International Hydrographic Organization is reviewing its Standards for hydrographic surveys in order to enhance safety. It is also working with IMO and its member States to have appropriate coverage of Electronic Navigational Charts in place by 2010, should mandatory carriage requirements for Electronic Chart Display and Information Systems be introduced by IMO (see A/62/66/Add.1, para. 67). It has also developed a capacity-building and training programme aimed at assisting developing States establish or enhance their hydrographic capabilities. It encourages States that have not done so to join the International Hydrographic Organization.[101]

186. The World Bank, GEF and the IMO are also cooperating to implement a new project for the development of a regional Marine Electronic Highway in the East Asian Seas in order to enhance maritime services, improve navigational safety and security and promote marine environmental protection and the sustainable development and use of the coastal and marine resources for the Straits of Malacca and Singapore. The First Meeting of the Project Steering Committee in 2007 approved the revised Project Implementation Plan and the budget, and the scope of services for the hydrographic survey of the Traffic Separation Scheme of the Straits. It is expected that the Electronic Navigational Charts for the Straits will be established and the demonstration of the Marine Electronic Highway system will take place around 2010.[102] In other regions, marine electronic highways are also

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[100] Contribution of IAEA.

[101] Contribution of IHO.

[102] Contributions of IMO and the World Bank.

being proposed to improve the safety of navigation and the prevention of marine pollution.[103]

187. *Electronic navigation*. MSC has agreed to develop a broad strategic vision for electronic navigation ("e-navigation"), incorporating the use of new technologies in a structured way and ensuring their use is compliant with navigational communication technologies and services already available, with the aim of developing an overarching accurate, secure and cost-effective system with the potential to provide global coverage for ships of all sizes (see A/62/66/Add.1, para. 66). To enhance the foundations for e-navigation, MSC adopted revised performance standards for shipborne voyage data recorders and simplified voyage data recorders, electronic chart display and information systems, survival craft automatic information systems, search and rescue transmitters and integrated navigation systems.[61]

188. *Routes used for international navigation*. IMO regularly reviews existing ships' routeing or reporting systems and adopts new systems to improve safety of navigation in converging areas, areas with dense traffic, or areas where ship movement is inhibited, as well as in environmentally sensitive sea areas. Such routeing and reporting systems and other measures can constitute associated protective measures for PSSAs. In 2007, MSC adopted several ships' routeing and ship reporting systems and other relevant measures which had previously been approved by the IMO Sub-Committee on Safety of Navigation (MSC 83/28, paras. 14.1-14.15).

189. *Straits used for international navigation*. In collaboration with IMO, Indonesia, Malaysia and Singapore convened a meeting in 2007 concerning the safety, security and environmental protection of the Straits of Malacca and Singapore. The meeting produced the Singapore Statement, which emphasized the need to continue supporting the work of the Tripartite Technical Expert Group on Safety of Navigation, as well as the Cooperative Mechanism established by the littoral States to promote dialogue and close cooperation between the littoral States, user States, the shipping industry and other stakeholders on safety of navigation and environmental protection (see A/62/518, annex). In paragraph 75 of its resolution 62/215, the General Assembly welcomed the formal establishment of the Cooperative Mechanism in line with article 43 of UNCLOS.

190. As regards the Torres Strait, concerns continue to be expressed regarding the introduction of compulsory pilotage in the Strait by Australia and Papua New Guinea in 2006, including in the General Assembly during its consideration of the item "Oceans and the law of the sea". Views differ on whether the compulsory pilotage scheme is in conformity with UNCLOS (A/60/63, paras. 125-126; A/60/63/Add.2, para. 62; A/61/63/Add.1, paras. 95-96; A/62/66, para. 282; and A/62/PV.65 and 77).

191. *Long-range identification and tracking of ships*. IMO continued its work on the establishment of a system for the long range identification and tracking systems of ships to enhance safety, security and environmental protection, including search

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[103] For example, the Ocean Security Initiative has developed projects on a marine electronic highway for the Northern Sea Route, and assessment of risks associated with increased maritime transportation of oil and natural gas via the Arctic Bridge and Northern Sea Route (see http://www.osi-int.org/proyectos.asp).

and rescue of persons in distress at sea (see para. 32 above). In 2007, MSC, noting that the use of long range identification and tracking systems information for safety and marine environment protection purposes would provide significant added value to existing systems, decided to allow Contracting Governments to request, receive and use long range identification and tracking systems information for safety and environmental protection purposes.[104]

(e) Implementation and enforcement

192. *Flag State implementation.* As in the case of international instruments pertaining to maritime security, flag States have primary responsibility for ensuring the effective implementation and enforcement of international rules and standards providing for maritime safety (also see paras. 122-124 above). Lack of effective control by flag States can leave the shipping industry vulnerable to abuses and can undermine maritime safety. In that respect, IMO has established an Integrated Technical Cooperation Programme to assist countries in building up their human and institutional capacities for uniform and effective implementation of the IMO regulatory framework. Between 2006 and 2007, 36 consultancy missions were carried out and seminars and workshops were held at the national and international levels.[61]

193. IMO instruments aimed at strengthening flag State implementation include the International Management Code for the Safe Operation of Ships and for Pollution Prevention (the ISM Code), which sets out requirements for a safety management system and regular audits, and the Code for the Implementation of Mandatory IMO Instruments, which provides the audit standard for the Voluntary IMO Member State Audit Scheme.

194. The Voluntary Audit Scheme provides for the assessment, monitoring and review of the level of implementation of mandatory IMO instruments relating to maritime safety and pollution from vessels by States in their capacity as flag, port and coastal States. Upon completion of the audit, a member State is provided with a comprehensive and objective assessment of how effectively it administers and implements the instruments covered by the Scheme (see A/62/66, para. 59 and A/62/66/Add.1, para. 72). Since the commencement of audits in September 2006, 18 audits have been successfully conducted. A further 16 member States have formally indicated their readiness to be audited.[61] The General Assembly has encouraged all flag States to volunteer to be audited (see resolution 62/215, para. 79).

195. *Port State control.* The complementary role of port States has become increasingly important in light of the failure of some flag States to exercise effective control over their vessels.[105] Port State control has an important role in promoting the effective enforcement of international instruments concerning safety, labour and pollution standards. Nine regional agreements on port State control are currently in

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[104] Resolution MSC.242(83) on Use of Long-Range Identification and Tracking Information for Safety and Marine Environmental Protection Purposes; and MSC 83/28, paras. 6.81-6.96.

[105] The 2007 Shipping Industry Flag State Performance Table (Baltic and International Maritime Council, International Chamber of Shipping/International Shipping Federation, Intercargo and Intertanko), indicates that 12 flag States currently have negative performance indicators. See also A/58/65, paras. 85-88, and 92-93; and A/58/95, paras. 9-12.

operation,[106] and participating States continue to coordinate their activities, for example, through joint concentrated inspection campaigns between these regional agreements, to increase the efficient use of resources and information[107] (see also A/62/66, para. 61).

196. IMO has promoted the exchange of information between port State control authorities, as well as the transparency of maritime data through the development of the IMO Global Integrated Shipping Information System and is currently pursuing the integration and harmonization of port State control activities (ibid., para. 61). A Code of good practices for port State control Officers was recently approved and the procedures for port State control among regional port State control regimes are currently under comprehensive review.[61] IMO has also provided technical assistance to developing countries for establishing effective national port State control capacities, or regional mechanisms of cooperation for port State control activities.

197. The GEF/UNDP/IMO Regional Programme on Partnerships in Environmental Management for the Seas of East Asia has commenced the second phase of its Port Safety Audit Manual project by providing assistance to ports in establishing formal management systems which ensure safe and environmentally friendly port and cargo operations and the protection of the health of port employees and adjacent populations, including through development of a Port Environment, Safety and Health Management Code.[108]

(f) Treatment of persons rescued at sea

198. Many people risk their lives to migrate clandestinely by sea from one country to another (see paras. 89-97 above). The perilous nature of those journeys and the numbers of incidents involving rescue or loss of life at sea underscore the importance of the SAR regime.

199. The duty to render assistance to any person found in distress at sea is a well-established maritime tradition and principle of international law enshrined in a number of instruments (see para. 170 above), including UNCLOS, article 98.

200. In 2004, IMO adopted amendments to the SOLAS and SAR Conventions to clarify the responsibilities of parties involved in a rescue situation, in particular to ensure the provision of a place of safety for disembarkation of rescued persons. The amendments require parties to coordinate and cooperate to ensure that masters of ships providing assistance to embarking persons in distress at sea are released from their obligations with minimum further deviation from the ships' intended voyage, provided that such release does not further endanger the safety of life at sea. The party responsible for the SAR region must exercise primary responsibility for ensuring such cooperation occurs, so that survivors assisted are disembarked from

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[106] The following MOUs have been adopted: Paris MOU (1982); Viña del Mar Agreement (1992); Tokyo MOU (1993); Caribbean MOU (1996); Mediterranean MOU (1997); Indian Ocean MOU (1998); Abuja MOU (1999); Black Sea MOU (2000); and Gulf Cooperation Council (Riyadh) MOU (2004).

[107] The Paris and Tokyo MOU conducted joint campaigns in 2006 and 2007 for MARPOL Annex I inspections and the ISM Code, respectively. A further campaign is planned in 2008 on safety of navigation (SOLAS chap. V). Concurrent concentrated inspection campaigns on the ISM Code were also conducted by other organizations in 2007, including the Black Sea, Mediterranean and Indian Ocean MOUs.

[108] Contribution of UNDP.

the assisting ship and delivered to a place of safety. The relevant party must arrange for such disembarkation as soon as reasonably practicable. IMO also adopted Guidelines on the Treatment of Persons Rescued at Sea, which provide guidance on the implementation of the amendments. IMO and UNHCR have also published "Rescue at Sea", a guide to principles and practice as applied to migrants and refugees (see http://www.imo.org/Facilitation/mainframe.asp?topic_id=1437).

201. However, the reluctance of some coastal States to allow disembarkation of persons rescued at sea and the imposition of preconditions for disembarkation or penalties on shipping companies has raised concerns about the potential for undermining the search and rescue regime. IMO is currently examining relevant administrative procedures of IMO member States and considering the preparation of additional guidance which could be useful for the expeditious and orderly disembarkation of persons rescued at sea.[61]

202. UNHCR has convened expert meetings and a meeting of State representatives to discuss recent challenges relating to the SAR regime, including refugee protection. These processes have also been supported by inter-agency meetings on the treatment of persons rescued at sea. The inter-agency meeting in December 2007,[109] identified key conclusions arising from the UNHCR meetings. The results of the inter-agency meeting were addressed during the High Commissioner's Dialogue on Protection Challenges in December 2007, which focused on the theme of refugee protection, durable solutions and international migration.[110]

(g) Maritime casualties or incidents and marine pollution

203. Data on maritime casualties and incidents is currently available on the Global Integrated Shipping Information System (see http://gisis.imo.org/Public). When a casualty or incident occurs, States may be asked to provide a place of refuge to a ship in distress. The General Assembly has encouraged States to draw up plans and to establish procedures to implement the IMO Guidelines on places of refuge for ships in need of assistance. The IMO resolution on Maritime Assistance Services seeks to establish a single point of contact in coastal States for ships in distress to call and for others involved in any follow-up action (see A/59/62, paras. 156-157).

204. *Investigating maritime casualties or incidents.* Within the framework of UNCLOS (art. 94(7)) and relevant IMO Conventions (SOLAS, Load Line Convention and MARPOL 73/78), IMO has developed a casualty reporting scheme and guidance on investigation procedures.[111] In 2007, MSC approved a new draft Code of International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident, with a view to adopting it in 2008 as an amendment to SOLAS to provide for its mandatory application (see MSC 83/28, paras. 15.15-15.23). The new Code will provide a common approach

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[109] Representatives from IMO, UNHCR, OHCHR, the United Nations Office on Drugs and Crime, the Division, IOM and ILO have participated at these meetings.

[110] The Chairman's Summary of the Dialogue is available at www.unhcr.org/protect/PROTECTION/476146702.pdf. The UNHCR plan entitled "Refugee protection and mixed migration: a 10-point plan of action", which sets out key areas where action is required to address these issues in countries of origin, transit and destination, was discussed during the Dialogue.

[111] Code for the Investigation of Marine Casualties and Incidents in resolution A.849(20), as amended by A.884(21).

for States to adopt in the conduct of marine safety investigations into marine casualties and incidents. It will require a marine safety investigation to be conducted into every "very serious marine casualty",[112] and it will recommend that a marine safety investigation be conducted into other marine casualties and incidents, by the flag State of any ship involved, if it is considered likely that an investigation would provide information that could be used to prevent future marine casualties and incidents (see IMO document FS 15/18).

205. *Marine pollution from maritime casualties or incidents*. Various activities are ongoing to prevent and address marine pollution owing to maritime casualties or incidents. IMO, in cooperation with UNEP, has established regional centres to coordinate anti-pollution activities in the Mediterranean (Regional Marine Pollution Emergency Response Centre) and the Wider Caribbean (Regional Marine Pollution Emergency Information and Training Centre), and it has developed an Oil Pollution Manual, which includes guidance on prevention, contingency planning, salvage, combating oil spills, administrative aspects of oil pollution response, and guidelines for sampling and identification of oil spills.[61] The Emergency Response Centre continues to implement the Regional Strategy for the Prevention of and Response to Marine Pollution from Ships, adopted by the Contracting Parties to the Barcelona Convention in order to achieve, by 2015, the objectives of the Protocol of 2002 concerning Cooperation in Preventing Pollution from Ships and, in Cases of Emergency, Combating Pollution of the Mediterranean Sea.[113]

206. Several types of exercises to improve efficient response operations at sea are regularly conducted under the auspices of various regional organizations, including HELCOM and the Black Sea Commission.[114] A HELCOM recommendation on "Strengthening of subregional cooperation in response field" provides a step-wise approach to improving the efficiency of response capability in the Baltic Sea, with a focus on achieving full preparedness to medium-size oil spills, which affect and require response from more than one country. In order to address difficulties in responding to oil spills in ice conditions in the Baltic Sea, cooperation between HELCOM and the Baltic Icebreaking Management will be enhanced.[58]

207. In the context of the Partnerships in Environmental Management for the Seas of East Asia, a 2006 Joint Statement on Partnership in Oil Spill Preparedness and Response Cooperation in the Gulf of Thailand contains a tripartite intergovernmental agreement, which commits participating countries to mutual support and assistance in combating oil spills in the Gulf of Thailand region.[108]

208. In cooperation with GEF, the World Bank has developed and managed projects to support oil spill preparedness and contingency planning capacity-building in several regions of the world. But GEF has now effectively discontinued its support for maritime pollution prevention under its new international waters focal area strategy[115] (see para. 224 below).

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[112] "Very serious marine casualty" was defined as a marine casualty involving the total loss of the ship or a death or severe damage to the environment.

[113] Contribution of UNEP.

[114] Contributions of HELCOM and the Black Sea Commission.

[115] Contribution of the World Bank.

3. Current challenges in maritime safety

209. Improving maritime safety requires the ongoing attention of the international community. The following section will describe some of the current challenges, many of which are also relevant to maritime security (see paras. 114-160 above). As noted above, the maritime security and safety regimes have common and mutually reinforcing objectives and international efforts to enhance one regime usually lead to improvements in the other.

(a) Enhancing the effectiveness of the international legal framework

210. A comprehensive and substantial body of global rules and regulations currently exists to provide for maritime safety. Apart from the need for broad participation in all relevant conventions, it is important that States have a common understanding of the rules and regulations and that they are also uniformly and consistently applied in conformity with the applicable legal regime, in particular UNCLOS.

211. Recent developments have highlighted the critical role of the human element in maritime safety, and the need for decent working and living conditions, adequate training and fair treatment of seafarers and fishers (see paras. 175-179 above). Widespread ratification of the Maritime Labour Convention, 2006 and the Working in Fishing Convention, 2007 will facilitate their early entry into force and their implementation will benefit seafarers and fishers, ultimately making an important contribution to maritime safety. Increased participation in relevant international instruments providing for training of fishers and safety of fishing vessels, in particular, those instruments that have yet to enter into force, including the 1993 Torremolinos Protocol and the Standards of Training, Certification and Watchkeeping for Fishing Vessel Personnel Convention, would also significantly contribute to maritime safety. FAO has underlined the need for strong political endorsement of initiatives which improve the safety of fishing vessels and fishermen. It considers that an international plan of action on safety at sea developed within the framework of the FAO Code of Conduct for Responsible Fisheries and applicable to all sizes of vessels could provide an opportunity to address safety comprehensively and become another milestone to improved safety (see para. 174 above).[96]

(b) Strengthening the implementation of maritime safety measures

212. As in the case of maritime security, strengthening the implementation of international instruments relating to maritime safety is a significant challenge. Likewise, lack of effective control by flag States, and the consequent undermining of the maritime safety regime, remains a paramount concern.

213. *Flag State implementation*. While the average number of oil spills over 700 tonnes has decreased,[116] maritime casualties continue to occur with some

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[116] From over 25 annually in the 1970s to 3.7 in the 2000s (see "IMO's response to current environmental challenges — Background paper for the World Maritime Day, 2007", available at http://www.imo.org/includes/blastDataOnly.asp/data_id%3D19508/9536-WMD.pdf).

regularity.[117] Such incidents are not the result of inadequate regulation at the global level but are mainly due to human error, or they can also be caused by unseaworthy vessels, and failures in management practices, all of which would be improved by strengthening flag State implementation and enforcement, and capacity-building (see A/58/65, para. 36).

214. The need for ongoing compliance with international regulations wherever a ship is operating, irrespective of registry or flag, has been emphasized in various forums, but increased efforts are needed to address this issue.[118] Part of the solution lies in greater vigilance and transparency in ship registration (see para. 123 above). The importance of developing a "compliance" or "safety" culture in the shipping industry has also been emphasized (see A/59/62, para. 139 and A/61/160, para. 52). Flag States also need to make better use of existing tools to assess their effectiveness, including the IMO Voluntary Member State Audit Scheme (see paras. 193-194 above).[119] A joint model course on flag State implementation covering all flag State responsibilities falling within the mandates of the various agencies has also been suggested (see A/61/160, para. 53). Some flag States, in particular developing States, have limited infrastructures to implement and enforce relevant instruments, so enhanced capacity-building is also necessary, including through financial and technical assistance, transfer of technology and training programmes.

215. *Coastal and port States*. Coastal States, including States bordering international straits used for international navigation and archipelagic States, have an important role in improving maritime safety, including by publicizing any dangers to navigation of which they have knowledge, and establishing sea lanes and traffic separation schemes. Ships' routing systems, ships' reporting systems, vessel traffic services, as well as other measures, contribute to safety of life at sea, safety and efficiency of navigation, and protection of the marine environment (see A/58/65, para. 35, and UNCLOS, art. 211). Some of the afore-mentioned measures presuppose hydrographic capabilities, which are not always available in developing States. In straits used for international navigation, user States and States bordering straits should cooperate regarding navigational and safety aids and other improvements and the prevention, reduction and control of pollution.

216. Enhancing the role of coastal States and port States with respect to enforcement is important, particularly in light of the failure of some flag States to exercise effective control over vessels flying their flag (see paras. 195-196 above) (see also A/58/65, paras. 85-88 and 92-93, and A/58/95, paras. 9-12). For example, increased coordination and cooperation between regional agreements on port State

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[117] As evidenced by recent major accidental oil spills in the Black Sea and off the coast of the Republic of Korea, among others. See "Black Sea faces oil 'catastrophe'", BBC News, 13 November 2007, at http://news.bbc.co.uk/2/hi/europe/7092071.stm, and "Oil spill after South Korea collision", BBC News, 7 December 2007, at http://news.bbc.co.uk/2/hi/asia-pacific/7132349.stm.

[118] See for example, A/62/66, paras. 57-59, and the report of the Ad Hoc Consultative Meeting of senior representatives of international organizations on the "genuine link" (A/61/160, annex).

[119] The General Assembly has encouraged all flag States to volunteer to be audited, and the IMO Assembly has invited IMO member States to continue to nominate qualified auditors and to encourage IMO member States that have not yet volunteered for audits to do so as early as possible (see resolution 62/215, para. 79).

control, including through joint campaigns, can further complement flag State implementation and enforcement and improve overall maritime safety.

217. *Seafarers and fishers*. Working and living conditions of seafarers and fishers have been negatively affected by the decline in the number of crew on board ships due to increased automation; increased security responsibilities; difficulties in taking shore leave and resulting increased social isolation; the criminalization and detention of seafarers following maritime accidents;[70] and cases of continuing human and labour rights abuses.[120] As a consequence, there are recruitment and retention problems. For example, there is now a severe and growing shortage in qualified and experienced navigation and engineering officers.[70]

218. In the fishing industry, increased competition for resources due to overcapacity and overfishing contribute to unsafe fishing operations, including reduced crew size and unsatisfactory maintenance of vessels and equipment.[121]

219. Effective implementation of the instruments providing for decent living and working conditions and the fair treatment of seafarers and fishers would improve maritime safety.

220. *Treatment of persons rescued at sea*. A number of challenges arise in the context of the treatment of persons rescued at sea. Among them is the need for flag States to ensure that masters observe the obligation under international law to rescue persons in distress at sea (A/61/63, para. 84). The reluctance of some coastal States to permit disembarkation of persons rescued at sea or the imposition of preconditions for disembarkation or penalties on shipping companies can also undermine the integrity of the SAR regime, as well as the rights and protections under international law of those rescued (ibid.). The General Assembly has called upon States to cooperate to ensure that persons are rescued at sea and delivered to a place of safety and has urged States to take all necessary measures to ensure the effective implementation of the amendments to SAR and SOLAS (resolution 62/215, para. 77). The need for functioning SAR facilities has also been emphasized as well as the need for clarity regarding the obligations of States with respect to SAR and disembarkation, particularly where the nearest coastal State has not declared a SAR zone.[49]

221. More effort is also needed to protect the rights of rescued persons under international instruments, particularly refugee law and human rights instruments. In that respect, concerns have been raised over procedures which may deny individual assessments of cases, jeopardize the rights of refugees and asylum-seekers, place individuals in mandatory detention, and forcibly return individuals to countries where they may risk torture. There is also a risk that individuals fleeing persecution may be returned to their country of origin under the pretext of being involved in trafficking or smuggling operations.[122]

(c) Strengthening capacity-building

222. A crucial factor in global efforts to improve maritime safety is the availability of the necessary legal and administrative framework to ensure effective implementation and enforcement of relevant international instruments. Greater

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[120] Report by the International Transport Workers' Federation, June 2006, op. cit.

[121] Contribution of FAO.

[122] Contribution of the Office of the United Nations High Commissioner for Human Rights.

efforts are needed to assist developing countries, including in drafting national legislation and in developing an integrated approach to maritime safety.

223. Capacity can be enhanced through, for example, the provision of financial and technical assistance, transfer of technology and training programmes. Workshops and training missions conducted by intergovernmental organizations can strengthen human and institutional capacities for uniform and effective implementation of international instruments and thus contribute to overall maritime safety (see, for example, paras. 185-186 and 196 above).

224. The lack of a sufficiently capitalized, stable funding mechanism to assist coastal developing countries in meeting their responsibilities for supporting safe and environmentally sound navigation remains a major issue. Certain activities, such as conducting hydrographic surveys or deploying sophisticated navigation aids and vessel traffic information systems, are non-revenue-generating activities that require significant capital investment, a high level of technical capacity, and are generally not covered by the private sector. There is an urgent need to identify an alternative grant funding mechanism to GEF that can provide a similar catalytic and convening role in respect of maritime pollution prevention[115] (see para. 208 above).

(d) Improving cooperation and coordination relating to maritime safety

225. Improving cooperation and coordination at all levels can greatly enhance maritime safety, including with respect to capacity-building. For example, improving efficiency in responding to large-scale incidents of marine pollution can be achieved by conducting exercises and through better coordination at the regional level.

226. It has been suggested that there is a need for enhanced understanding and practice in the level of cooperation and coordination between the key agencies involved in maritime safety communication services to ensure that sufficient primacy is being given to those services, which are essential for the safety of life and property at sea. Continuing pressure on the use of the radio spectrum for all purposes is leading to potential problems regarding the reallocation of spectrum currently used by satellite services for maritime distress and safety purposes. Since the only way to change those services is through the launching of new satellites, evolution of the use of spectrum requires considerable specialist understanding and careful management.[123]

227. In the context of rescue operations, improved cooperation and coordination is vital in order to avoid delays in responding to such incidents[49] (see also MSC 83/27/6, A/61/63, para. 84, and A/61/63/Add.1, paras. 55-60). It has been suggested that future efforts to improve the SAR regime should involve cooperation with States with disproportionately large SAR regions, and support to States which lack the capacity to conduct SAR operations[49] (see also MSC 83/27/6). International cooperative efforts are also required to address complex rescue-at-sea situations. Such efforts could be built around burden-sharing arrangements.

228. Although international migration by sea poses its own unique challenges, for example, in rescue-at-sea situations, it should also be considered in the broader

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[123] Contribution of the International Mobile Satellite Organization.

context of international migration, including by addressing the root causes (see paras. 96-97 above).

VI. Marine science and technology

229. Increasingly, there is a call in various international forums for more scientific information and analysis to support policymaking and decision-making. Science and technology contribute to the understanding, knowledge and sustainable management of the marine environment, its biodiversity and ecosystems. They are crucial for the establishment of warning systems for tsunami, other phenomena such as El Niño, as well as for the mitigation of pollution incidents. The development of marine science programmes and technology underpin processes such as the regular process for global reporting and assessment of the state of the marine environment including socio-economic aspects (see paras. 377-380 below). IOC/UNESCO and UNEP, for example, and research networks, such as Census of Marine Life, have contributed to the development of a number of marine science and technology programmes. The present chapter describes recent developments regarding some of the established scientific programmes and new technology.

A. Marine science

230. *Global Ocean Observing System*. IOC has continued to develop the Global Ocean Observing System in partnership with the WMO, UNEP and the International Council for Science (see also A/60/63/Add.2, para. 90). In 2007, 3,000 Argo profiling floats (see A/57/57, para. 533) measuring temperature and salinity between the surface and 2,000 meters depth[124] were deployed. A substantial percentage of the System's sea level stations (ibid., para. 319) have been upgraded to real time data delivery for alerting purposes of extreme conditions in coastal and regional areas. Such data are also relevant for the maritime industry.

231. *International Oceanographic Data and Information Exchange*. Whereas the International Oceanographic Data and Information Exchange programme has traditionally dealt with delayed-mode physical oceanography data, the need for a similar mechanism for chemical and biological ocean data has led to the development of the IOC Strategic Plan for Oceanographic Data and Information Management, adopted by the IOC Assembly in June 2007. This Strategy aims to deliver: (1) processing and archival of data on a diverse range of variables according to scientifically sound and well-documented standards and formats; (2) distribution of data on a diverse range of variables (observations and model outputs) in both real time and in delayed modes depending on the needs of user groups and their technical capabilities; and (3) efficient access to data on core variables and derived products (including forecasts, alerts and warnings) by users who have a broad range of capabilities. Core activities that are being developed are an international agreement on standards; and an OceanDataPortal (www.oceandataportal.net) that will provide access to collections and inventories of marine data from the national oceanographic centres in the International Oceanographic Data and Information Exchange network and will allow for the discovery, evaluation and access to data

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[124] Contribution from UNESCO/IOC.

via web services. That system aims to facilitate access to data by a wide variety of users and thus supports the development of data products and services.

232. *Harmful algal bloom.* At a Workshop in January 2008 an international task team began developing a Harmful Algal Information System, which is envisaged to become the leading system for providing data and information on toxic algae bloom in the world's oceans based upon data received from national monitoring operations and scientific expertise provided by national experts. The system will also allow the exchange of global information and be built on both existing IOC data products on harmful algal events, taxonomy and harmful algal bloom monitoring systems and on new components to be developed on global species occurrence and identification. The Harmful Algal Information System is developed in cooperation with the International Council for the Exploration of the Sea, the North Pacific Marine Science Organization, the International Society for the Study of Harmful Algae, the Ocean Biogeographic Information System and the Encyclopaedia of Life.[124]

233. *Marine biodiversity.* UNEP-World Conservation Monitoring Centre has initiated collaboration with the Ocean Biogeographic Information System established by the Census of Marine Life programme[113] in order to exchange and share geo-referenced data on marine biodiversity (e.g. on vulnerable deep-water ecosystems such as cold-water coral reefs, or data coming forward under the various Census of Marine Life programmes) with a view to improving the Internet-based access (www.iobis.org) for all stakeholders (see www.coreocean.org/?Dev2go.web).

B. Early warning systems

234. *The Indian Ocean Tsunami Warning Mitigation System.* At its session in 2007, the member States of the Indian Ocean Tsunami Warning Mitigation System Intergovernmental Coordination Group 2007 resolved that full regional coverage would be available by the end of 2008. In December 2007, UNESCO/IOC signed an agreement with the International Maritime Satellite Organization, a leading provider of global mobile satellite communications (see http://portal.unesco.org), to further upgrade and improve the near real-time delivery of sea level data in the Indian Ocean for confirming tsunamis.

235. The earthquake of an 8.4 Moment magnitude scale (Mw) and its resulting tsunami southwest of Sumatra in the Indian Ocean on 12 September 2007 provided a test for the warning system (see http://nctr.pmel.noaa.gov/sumatra20070912.html). It responded to the emergency by identifying in 4.3 minutes the epicentre and hypocentre of the earthquake and by estimating its precise magnitude. Furthermore, in six minutes, warnings were issued to the population. An analysis of replies to a questionnaire, to which 24 States out of 28 responded describing their degree of preparedness and awareness of the event, reveals that three years after the devastating 2004 tsunami in the Indian Ocean, the system is approaching operational maturity.

236. *Pacific Tsunami Warning System.* The Pisco earthquake off Peru on 15 August 2007 with Mw 8.0 was a strong reminder of the changes needed for Pacific Tsunami Warning System, which is the oldest existing tsunami warning system (see www.eeri.org/lfe/pdf/peru_pisco_eeri_preliminary_reconnaissance.pdf). The system was initially designed to warn of distant source tsunamis. Improved science and technology have shown that the threats of near-field source tsunami also need to

be addressed. Changes in deployment and improved technology are crucial to improving the protection of lives and livelihoods in the Pacific and particularly in the South Pacific.

237. The Pacific Tsunami Warning Centre has developed a Communication Plan for the Interim Tsunami Advisory Information Service to the Caribbean Sea and Adjacent Regions. According to that plan, currently available seismic data from the region will permit a preliminary earthquake evaluation within 10 to 20 minutes of the rupture. While increasing the number of stations, the response time will decrease. Currently available sea level data from the region are insufficient to quickly detect whether a tsunami is occurring and measure its size from all the potential source regions. However, new deep ocean gauges have recently been deployed and new coastal gauges are planned to improve this coverage. As of January 2008, some 22 of the countries in the Caribbean region have designated Tsunami Warning Focal Points and Tsunami National Contacts.

238. *The Tsunami Early Warning and Mitigation System in the North Eastern Atlantic, the Mediterranean and Connected Seas*. At its session,[125] the Intergovernmental Coordination Group for the system decided that on an interim basis and during the first quarter of 2008, the software system (SeisComp3) developed by the National Research Centre for Geosciences of Germany for the Indian Ocean, would be tested in a network of initial regional tsunami warning centres.[124] Based on the outcome of intensive testing, a task-team will develop recommendations for the final system by mid-2008 which would also include proposals for potential partners and funding mechanisms. In addition, the European Union recognized the need to establish an early warning system for tsunamis in the North East Atlantic and the Mediterranean region which will be based on the system developed under IOC. The Council also invited the European Commission and member States to contribute to the work in progress at the United Nations by supporting relevant research and development projects (see http://register.consilium.europa.eu/pdf/en/07/st15/st15479.en07.pdf).

C. Recent developments in marine technology

239. *Autonomous unmanned undersea vehicles*. These vehicles have been in use for some time for remote data collection, although it is a technology that undergoes continuous development and expansion. An autonomous unmanned undersea vehicle was recently launched by a submarine while under way and docked by means of a robotic arm from the submarine (see www.boeing.com/news/releases/2007/q4/071126b_nr.html). A prototype, environmentally friendly, autonomous unmanned undersea vehicle was launched in December 2007 and has been working, uninterrupted, since that time in a data-gathering mission that could last up to six months (see www.whoi.edu/page.do?pid=7545&tid=282&cid=37008&ct=162). The thermal glider is propelled by drawing energy from the temperature differential between different water layers. Woods Hole Oceanographic Institute (ibid.) has deployed the vehicles around Gakkel Ridge in the Arctic Ocean in the first search for life in that unique seafloor environment.

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[125] ICG/NEAMTWS IV, November 2007; see also www.ioc-tsunami.org/index.php.

240. *Remote sensing*. The Jason-2 satellite, which is scheduled to be launched in June 2008, will take over from the Jason-1 on a mission of measuring sea surface height (see www.jason.oceanobs.com/html/missions/jason2/welcome_uk.html). The payload of the satellite will include new and improved instrumentation, including the Poseidon-3 altimeter, which will measure sea level height to within a few centimetres, wave heights and wind speed. The instrument will enable improved measurements particularly over coastal areas, inland waters and ice. The orbit of the satellite will be the same as Jason-1 covering 90 per cent of the world's oceans in a cycle of just under 10 days. The objective of the satellite is to produce quality altimetric data to study long-term and decadal variations of sea levels, including mean sea level variations. The data will be integrated into near-real time ocean forecasting models and will be applied to climate study, seasonal forecasting, including El Niño and similar phenomena, and other ocean studies. After an in-flight qualification phase of about six months for Jason-2, the Jason-1 satellite will be aligned to a new orbit.

241. A new technique has been developed using the European Space Agency Advanced Synthetic Aperture Radar instrument aboard the Envisat satellite to obtain information on ocean current dynamics (see http://www.esa.int/esaCP/SEMZRQEMKBF_index_0.html). The technique has identified how surface winds and currents affect the Doppler shift,[126] observed in the electromagnetic waves reflected off the water surface. Ocean current dynamics are studied for their role in weather, climate and the transport of pollutants.

242. *Shipping*. A coating for ships hulls and other similarly affected surfaces announced at the EuroNanoForum 2007 (see http://www.euronanoforum2007.eu), has been created utilizing nanotechnology. The coating stops marine organisms, such as algae and barnacles, from adhering to the surface, and functions by the inclusion of carbon nanotubes into the paint which disrupts the painted surface at the molecular level and can cause otherwise harmful organisms to be swept away by vessel movement (see also para. 290 below).

243. Testing has been conducted to develop technology to measure the amounts of sulphur and nitrogen oxides in smokestack emissions from ships (see chalmersnyheter.chalmers.se/chalmers03/english/Article.jsp?article=9899). The experiments use airborne instruments, one which optically analyses sunlight reflection off the water surface and another which directly analyses gases. It is expected that this technology will be able to enable the monitoring of individual vessels and reductions in their emissions in line with the MARPOL annex VI regulations.

244. *Submarine cabling*. Construction has commenced of a 13,700 kilometre long communications cable connecting southern and eastern African countries[127] with India, the Middle East and Europe and is expected to be completed by early 2009. There is a sole cable in the region and it is expected that the 1.28 terabytes per second capacity of the new cable will provide access to inexpensive bandwidth and remove an existing infrastructure bottleneck in the region, thereby promoting

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[126] The Doppler effect is the change in frequency and wavelength of a wave as perceived by an observer moving relative to the source of the waves (en.wikipedia.org/wiki/Doppler_effect).

[127] The countries to be connected include Kenya, Madagascar, Mozambique, South Africa and the United Republic of Tanzania.

regional economic growth (see www.tycotelecom.com/AboutUs/content.asp?page=view&type=Press&id=301).

245. *Wave energy*. The AquaBuOY 2.0 wave energy device prototype, which has been in trials off the west coast of North America, works by the conversion of the vertical component of wave kinetic energy into pressurised seawater with power being transmitted to shore by undersea transmission lines (see www.finavera.com/en/home). The trials are being used to develop the next version of the system with commercial electricity generation planned by 2010. The wave energy converters will be deployed as a buoy array as opposed to more conventional wind turbines, which have impeded the progress of this source of energy because they are seen as aesthetically displeasing. The wave energy converters, based on navigational buoys will be visible to sea users and will be able to survive the ocean environment for a number of decades but not be overly noticeable from shore.

246. *Wind propulsion*. The 10,000 ton merchant vessel *Beluga SkySails* has undergone a trial return journey from Germany to Venezuela utilizing new wind propulsion technology marking its first practical test and a possible return of the age of sails for shipping (see www.skysails.info/index.php?id=6&L=1). The maiden voyage utilized a 160-square metre kite in conjunction with conventional propulsion which is expected to reduce fuel consumption by at least 10 per cent depending upon prevailing wind conditions, with estimates of up to 50 per cent predicted during times of optimal wind conditions.

VII. Conservation and management of marine fishery resources

247. Some 26 years after the adoption of UNCLOS and 13 years after the adoption of the FAO Code of Conduct for Responsible Fisheries, improving fisheries governance remains a fundamental global challenge. Overfishing, IUU fishing and destructive fishing practices continue in many regions and are a source of concern in the fishing industry and for the international community. According to the 2006 FAO World Fisheries Report,[128] many stocks are fully exploited or overexploited, depleted or recovering from depletion, confirming earlier observations that the maximum wild capture fishery potential from the world's oceans has probably been reached.

248. Several instruments encourage responsible fisheries and aim to enhance compliance with international conservation and management measures (see paras. 102-104 above). Such instruments entrust important responsibilities to flag States, port States and RFMO/As to ensure sustainable fisheries and address unsustainable fishing practices. Unfortunately, lack of or insufficient implementation of these instruments has diminished their effectiveness in improving fisheries governance and sustainable management of fish stocks. Consequently, a number of new initiatives are being put forward by States and RFMO/As to ensure effective compliance by fishing vessels with international conservation and management measures and also provide for better protection of VMEs and marine biodiversity (see also paras. 311 and 313 below). Some examples are presented in the present chapter.

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[128] FAO, *The State of World Fisheries and Aquaculture*, 2006, Rome, 2007, available from http://www.fao.org.

249. *Towards the assessment of flag States' performance.* The critical role of flag States in ensuring compliance by vessels flying their flag with conservation and management measures and the lack of effective control by some flag States over their vessels in the context of IUU fishing are addressed in chapter V above (see paras. 48, 101, 102, 122, 123 and 131). There is now a prevailing view that fishing vessels on the high seas which are not effectively controlled by their flag States are liable to sanctions by other States, should they happen to contravene international conservation and management measures.

250. In 2007, following calls to develop appropriate processes to assess flag States' performance at the 2006 Review Conference on the United Nations Fish Stocks Agreement and by the General Assembly (see A/CONF.210/2006/15, annex, para. 43 (g), and General Assembly resolution 61/105, para. 41, and resolution 62/177, para. 41), The Committee on Fisheries requested the FAO to consider the possibility of convening an expert consultation to develop criteria for assessing the performance of flag States, as well as to examine possible actions against vessels flying the flag of States not meeting such criteria.[129]

251. Existing relevant international instruments already provide benchmarks and criteria for assessing the performance of flag States over fishing vessels flying their flags (see paras. 102-105 above). These instruments should assist the future expert consultation in identifying criteria for assessing the performance of flag States and establishing the profile of a "model flag State" or responsible flag State. Assessment of flag State performance is generally viewed as a parallel process to the assessments of RFMO/As performance already under way.

252. *Development of port State measures.* Port State measures have been implemented at the regional level within the framework of RFMO/As as additional and complementary mechanisms to address IUU fishing (North East Atlantic Fisheries Commission, Northwest Atlantic Fisheries Organization and the Commission for the Conservation of Antarctic Marine Living Resources) (see paras. 103, 106, and 125-126 above). Attention has also been given to the benefits of harmonized port State measures, including the elimination of "ports of convenience" and the practice of "port hopping" by IUU fishing vessels intending to avoid rigorous port State scrutiny (see also para. 125 above).

253. The Review Conference on the United Nations Fish Stocks Agreement recommended the adoption by States of "all necessary port State measures" to combat IUU fishing and promote minimum standards at the regional level. It also invited the FAO to develop a legally binding instrument on minimum standards for port State measures (see A/CONF.210/2006/15, para. 42 (d)). Accordingly, the FAO convened in 2007 an expert consultation to draft such an instrument, based on the FAO 2005 Model Scheme on Port State Measures to Combat Illegal, Unreported and Unregulated Fishing.[130] The draft instrument will be finalized by a FAO Technical Consultation in June 2008 and submitted for approval to the Committee on Fisheries in 2009.

254. The draft instrument establishes minimum standards for port State measures applicable to foreign fishing vessels and, in specific circumstances, to national

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[129] FAO, note 96 above, at para. 71.

[130] See FAO document (FIEL)R856 (En).

fishing vessels of the port State.[131] It also establishes the basic rights and duties of port States in respect of foreign fishing vessels entering its ports. The draft instrument includes provisions for prior requirements for such entry; circumstances allowing denial of use of port; information and inspections of vessels in ports, including general duties of a port State relating to inspections of vessels and exchange of information with other States, port State actions and reports of inspections. It refers to the duties and responsibilities of flag States to cooperate with the authorities of the port State, as well to ensure compliance with measures adopted by RFMO/As. It also includes provisions addressing the requirements of developing States. The draft instrument also endorses the mechanisms for the peaceful settlement of disputes provided under Part VIII of UNFSA.

255. *Environmental impact assessment of fishing activities*. One of the main principles of environmental law and sustainable development is the requirement of environmental impact assessment for proposed activities that are likely to have a significant adverse impact on the environment.[132] With regard to fishing activities, the United Nations Fish Stocks Agreement, in application of the precautionary approach, requires States to assess the impacts of fishing, other human activities and environmental factors on target stocks and associated and dependent species belonging to the same ecosystem (art. 5 (d) of the Agreement). It also requires States to, inter alia, develop data collection and research programmes to assess the impact of fishing on non-target species, and to adopt plans, which are necessary to ensure the conservation of such species and to protect habitats of special concern (art. 6 (3) (d) of the Agreement). The need for environmental impact assessment in respect of all uses and activities with the potential to affect the marine environment has emerged as a fundamental leitmotiv at the recent Workshop on High Seas Governance for the 21st Century, in October 2007.[133]

256. In its resolution 61/105 on sustainable fisheries, the General Assembly called upon flag States and RFMO/As to take a number of measures in respect of bottom fisheries. As a follow-up, the FAO convened, in October 2007, an expert consultation to draft international guidelines for the management of deep-sea fisheries in the high seas. Recognizing possible adverse impacts of deep-sea fishing activities on VMEs and marine biodiversity, the draft guidelines draw attention to the importance of environmental impact assessment and indicate, that the "vulnerabilities of populations, communities and habitats must be assessed" (FAO document TC:DSF/2008/2, paras. 43 and 47). Consequently, they recommend that flag States should conduct assessments in order to establish if fishing activities are likely to produce significant adverse impacts in a given area. Such an impact assessment should, for the area concerned, address, inter alia, the types of fishing to be conducted; non-fishing activities; the proportion of the populations; communities and habitats at risk of being impacted by the fishing; the risk that an area contains VMEs and whether they would be affected by the fishing activities; and the measures to avoid or reduce impacts to a level that does not result in significant

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[131] Draft article 1 (f) has widened the definition of "fishing vessel" to include any boat, ship or other craft used for fishing or related activities, and includes support ships, reefer or carrier vessels and vessels involved in fishing operations.

[132] Principle 17 of the Rio Declaration; see also UNCLOS and the Convention on Environmental Impact Assessment in a Transboundary Context.

[133] Co-Chairs' Summary Report of the Workshop on High Seas Governance for the 21st Century, October 2007, convened through the initiative of the World Conservation Union.

adverse impacts. Impact assessment should be repeated in periods appropriate to the nature of the fishery and the ecosystem, or when there have been natural changes or changes to the fishery or other activities in the area (ibid., para. 47).

257. *Implementation of trade-related measures by RFMO/As*. IUU fishing activities are essentially motivated by economic gains and incentives to engage in such activities will persist as long they remain a profitable venture for the operators concerned. Accordingly, the use of trade-related measures, as complementary measures to traditional MCS schemes, has become a potent weapon for RFMO/As to combat IUU fishing.[134] They form part of a new strategy aimed at increasing the costs of IUU business and eliminating the profits made by IUU beneficiaries. The public listing of IUU fishing vessels by RFMO/As (Commission for the Conservation of Antarctic Marine Living Resources, Inter-American Tropical Tuna Commission, International Commission for the Conservation of Atlantic Tunas, Northwest Atlantic Fisheries Organization, North East Atlantic Fisheries Commission, Western and Central Pacific Fisheries Commission) constitutes the catalyst for this new strategy as it serves to trigger measures by port States, importing States and market States to prevent fish or fish products suspected of originating from IUU fishing from reaching the market. The inclusion of the *Polestar reefer* on the North East Atlantic Fisheries Commission's B-list (negative list) for its trans-shipment activities with IUU fishing vessels in the regulatory area of the Commission, demonstrates the effectiveness of negative listing of IUU fishing and support vessels by RFMO/As. Because of its negative listing, the *Polestar* was refused entry into ports in East Asia, Europe, North Africa and North America in 2006, and was finally detained in Morocco with its cargo in 2007 (North East Atlantic Fisheries Commission Press Release, 28 June 2007).

258. As a result of this RFMO strategy, a number of States which are not members of RFMO/As have sought cooperating non-member status with RFMO/As. Many RFMO/As also have provisions applicable to non-members and several of them have encouraged non-members to become party or to seek cooperating non-party status, provided that applicants confirm their commitment to respect RFMO/As conservation and management measures. In return, these States would receive a portion of the total allowable catch as new members or "cooperation quotas" as cooperating non-members. In this regard, the provisions of articles 119(3) of UNCLOS and articles 8(3) and 17(3) of the United Nations Fish Stocks Agreement are particularly relevant.

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[134] Report of the First Meeting of Regional Fishery Body Secretariats Network (FIEL/R837), Rome, 12-13 March 2007, *FAO Fisheries Report* No. 837, para. 54. See also para. 105 above.

VIII. Marine biological diversity

259. The rate of marine biodiversity loss continues to be a matter of concern to the international community.[135] As a result, and also in light of the proximity of relevant timelines and targets established in paragraphs 30 to 32 of the Johannesburg Plan of Implementation[136] by the World Summit on Sustainable Development and other policy-making bodies,[137] the conservation and sustainable use of marine biological diversity remains an important focus of the discussions in various international forums. Issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction identified in paragraph 91 of resolution 61/222, will be considered at a meeting of the General Assembly Working Group (for further information, see www.un.org/Depts/los).

A. Recent measures to address activities and pressures on marine biological diversity

260. In February 2008, the thirteenth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice of the Convention on Biological Diversity considered marine and coastal biological diversity, in particular options for preventing and mitigating the impacts of some activities on selected seabed habitats, ecological criteria for marine areas in need of protection and biogeographic classification systems (see para. 310 below). A number of recommendations were agreed upon, which will be further considered by the ninth meeting of the Conference of the Parties to the Convention on Biological Diversity in May 2008.[138]

261. The Meeting recommended that the Convention on Biological Diversity Executive Secretary be requested by the ninth meeting of the Conference of the Parties to undertake, in collaboration with States and relevant organizations, a number of studies to be made available for consideration at future meetings of the Subsidiary Body, prior to the tenth meeting, in 2010, when it will undertake an in-depth review of the marine and coastal programme of work. These included the compilation and synthesis of available scientific information: on the impacts of destructive fishing practices and IUU fishing on marine biodiversity and habitats, while recognizing the role of FAO in this area; on direct human-induced ocean fertilization (see also UNEP/CBD/SBSTTA/13/L.5), while recognizing the role of IMO in this field, and on ocean acidification as well as their impacts on marine biodiversity (see also UNEP/CBD/SBSTTA/13/INF/11).

262. The Subsidiary Body, inter alia, invited cooperation in further developing and applying effective options for preventing and mitigating the adverse impacts of

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[135] See the Proceedings of the Norway/United Nations Conference on Ecosystems and People — Biodiversity for Development — The road to 2010 and beyond, 2007.

[136] Plan of Implementation of the World Summit on Sustainable Development (*Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex, paras. 30-32).

[137] For example, in 2002 the Conference of the Parties of the Convention on Biological Diversity agreed to achieve a significant reduction in the rate of biodiversity loss by 2010.

[138] The report of the meeting was not available at the time of writing, thus the provisional reference number of the recommendations is used in the text.

human activities to selected seabed habitats.[139] It recommended that the ninth meeting urge States and organizations to undertake further research to improve understanding of marine biodiversity, specially in selected seabed habitats and marine areas in need of protection, including the elaboration of inventories and baselines to be used for assisting in the assessment of the status of biodiversity, paying special attention to those ecosystems and critical habitats that are relatively unknown. The recommendations also addressed capacity-building in developing countries and the promotion of full and effective participation of indigenous and local communities when establishing new MPAs.

B. Initiatives regarding specific ecosystems

263. *Coral reefs*. In order to raise awareness of the value of coral reefs and to motivate people to take action to protect them, the ICRI has launched the International Year of the Reef 2008. The ICRI secretariat has also proposed an action plan for 2007-2009 aimed at ensuring the long-term survival, productivity, and recovery of coral reefs and related ecosystems by fostering and maintaining their resiliency through awareness, conservation and management.[140] At its General Meeting in January 2008, ICRI identified sustainable tourism and fisheries management and the establishment of MPAs as ways to protect coral reefs.[141] ICRI is developing a toolkit and training programme for standardized coral reef enforcement and natural resource investigations, which can be adapted for use in any major coral reef region.[113]

264. UNEP, in collaboration with the Global Coral Reef Monitoring Network, is in the process of reviewing the impacts of land-based sources of pollution on the health of coral reefs and the resilience of reefs to other threats, such as those originating from global climate change. A report with case studies from various coastal States will be published in late 2008.[113]

265. A global partnership between GEF and 40 collaborating institutions is supporting the Coral Reef Target Research and Capacity-building to inform management and policy-decision affecting coral reefs, including through Centres of Excellence located in Australia, Mexico, the Philippines and the United Republic of Tanzania. Scientists working under the partnership recently determined that under the most conservative scenarios of the Intergovernmental Panel on Climate Change, ocean acidification and increasing sea temperatures combined with other physical and anthropogenic stresses will have devastating consequences for coral reefs. Under the least conservative scenarios, more than half the world's coral reefs will disappear. Greater efforts to sustainably manage these ecosystems will be required to build resilience to such stresses.[81]

266. *Deep sea ecosystems*. At their ninth global meeting, representatives of the Regional Seas Conventions and Action Plans agreed to intensify activities in support of the Johannesburg Plan of Implementation and the Jakarta Mandate of the Convention on Biological Diversity, in particular by identifying critical issues

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[139] See also UNEP/CBD/SBSTTA/13/INF/13, prepared by the Convention on Biological Diversity in collaboration with the Division for Ocean Affairs and the Law of the Sea.

[140] The plan of action is being proposed by the current United States-Mexican co-chairmanship of ICRI. See www.icriforum.org/secretariat/gmdc/pdf/GM_DC_Sec_Plan_Action.pdf.

[141] The report of the meeting was not available at the time of writing.

related to marine biodiversity, protecting its major components, and promoting its sustainable use, with a focus on, inter alia, protection of marine biodiversity beyond areas of national jurisdiction, and deep-sea biodiversity at the regional scale (see para. 319).[113]

267. UNEP-World Conservation Monitoring Centre, in collaboration with the European deep-sea research project Hotspot Ecosystem Research on the Margins of European Seas (HERMES), published a scoping report on the socio-economy, management and governance of deep-sea biodiversity and ecosystems, which provides information and guidance on the location of vulnerable deep-water and high seas ecosystems, the ecological, social and economic goods and services they provide, and how they are affected or threatened by existing or emerging activities and climate change.[113]

C. Measures for specific species

1. Cetaceans

268. The Year of the Dolphin 2007 has been extended into 2008 owing to its success (see www.yod2007.org). It has led, for example, to the development of a draft agreement for the conservation of small cetaceans and manatees in the West African region and draft action plans for those species. Once finalized, it will be one of the agreements on cetacean conservation with the largest geographic coverage.[142]

269. As at 3 February 2008, the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS) is also applicable to the North East Atlantic and the Irish Sea, as also reflected in its new name (Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas; see also A/62/66/Add.1, para. 149). During 2007, workshops on selection criteria for MPAs for cetaceans and marine mammals, as well as on small cetacean population structure in the ASCOBANS Area and on genetics and population structure of the Harbour Porpoise in the Baltic were convened.

270. The Parties to ACCOBAMS adopted a new conservation plan for the Black Sea region in October 2007. They also adopted resolutions on the Mediterranean common dolphin and fin whales in the Mediterranean and agreed to include in the text of the Agreement a prohibition of the use of drift nets. Various guidelines were adopted, in particular on the rescue of animals in distress, centralized collection of tissue samples from stranded animals, the release of cetaceans into the wild, and anthropogenic noise (see para. 300 below). The Meeting also decided to establish a "label" for whale-watching operators in order to promote sustainable whale-watching, and adopted criteria for the selection and format of proposals for MPAs for cetaceans and guidelines for the establishment and management of such MPAs.[143]

271. *Ship strikes*. The development of faster and larger ships, as well as increased ship traffic, has led to concerns about the risks associated with ship collisions with cetaceans, also known as ship strikes.[144] MEPC will consider in March 2008, a

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[142] West African Talks on Cetaceans and Their Habitats, October 2007. Contribution of UNEP/Convention on Migratory Species.

[143] Report of the Third Meeting of the Contracting Parties to ACCOBAMS.

[144] Contribution of the International Whaling Commission.

proposal to add a new item to its work programme on measures for minimizing the risks of ships strikes with cetaceans with a view to facilitating coordinated and consistent treatment of this issue (see MEPC 55/23, para. 22.15 and MEPC 57/18/2). MSC has in the past adopted measures, for example, mandatory ship reporting systems, in order to prevent ship strikes with the northern right whales (see, e.g., A/54/429, para. 166; and A/62/66/Add.1, para. 68, for a proposal approved by NAV).

272. At the regional level, ship strikes are being addressed, among others, in the context of ASCOBANS (see A/62/66/Add.1, paras. 148 and 192) and ACCOBAMS, where the creation of a Mediterranean network is foreseen with a view to building a database on ship strikes and facilitating information exchange and data-sharing. The mitigation measures proposed during a 2005 workshop on large whale ship strikes in the Mediterranean Sea will be initially tested in targeted areas and, if proven to be efficient, proposed for implementation on a wider scale.[145]

2. Other migratory species

273. *Dugong*. An MOU on the Conservation and Management of Dugongs (Dugong dugong) and their Habitats throughout their Range developed under the umbrella of the Convention on Migratory Species, entered into force on 31 October 2007. That Convention is also supporting the development of a National Dugong Conservation Strategy, expected to be finalized by the end of 2008, and an Action Plan for the remaining dugong populations in Indonesia.

274. *Monk seal*. A new MOU for the protection of the Eastern Atlantic Populations of the Mediterranean Monk Seal was concluded on 18 October 2007 and provides the framework for an Action Plan for the recovery of this species. The main action foreseen by the Plan is the creation of a Network of Special Areas of Conservation for the Monk Seal to help restore populations.

275. *Sharks*. A meeting to promote international cooperation on migratory sharks conservation was held under the umbrella of the Convention on Migratory Species in December 2007. Governments agreed, in principle, to the development of a new global agreement in 2008 to protect the Basking Shark, Whale Shark and Great White Shark currently listed on the appendices of the Convention on Migratory Species. Range States will be able to add other species to the scope of the agreement.

276. *Sea turtles*. Under the framework of the MOU on the Conservation and Management of Marine Turtles and Their Habitats in the Indian Ocean and South-East Asia, efforts to monitor turtle migration continued and public awareness initiatives were conducted in 2007. Following South Africa's signature of the MOU concerning Conservation Measures for Marine Turtles of the Atlantic Coast of Africa on 6 November 2007, all 23 African Range States are now signatories to the MOU.

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[145] Contribution of UNEP/Convention on Migratory Species.

D. Genetic resources

277. The outcome of the eighth meeting of the Consultative Process on the topic of focus "Marine genetic resources" (see A/62/169) was considered by the General Assembly at its sixty-second session and is reflected in paragraphs 134 to 136 of its resolution 62/215. Marine genetic resources beyond areas of national jurisdiction will be considered by the General Assembly Working Group at its meeting in 2008 (see para. 3 above).

278. The responsible use of marine biodiversity in fisheries and aquaculture was a central theme of the eleventh session of the FAO Commission on Genetic Resources for Food and Agriculture. It included aquatic genetic resources in its multi-year programme of work and promoted an ecosystem approach to address the issue. It also recommended that FAO produce guidelines on genetic resources management in aquaculture, as part of the *Technical Guidelines for Responsible Fisheries* series. FAO is also preparing a review of status and trends in aquatic genetic resources in marine capture fisheries, the deep sea and aquaculture, which can assist in the identification of key policy issues, priorities and implications for the international community and specifically for the work of FAO and the Commission on Genetic Resources for Food and Agriculture.[146]

279. At its meeting in January 2008, the Ad Hoc Open-ended Working Group on Access and Benefit-sharing of the Convention on Biological Diversity continued discussing the nature, scope, objectives and main components of an international regime on access and benefit-sharing. The recommendations of the Working Group will be considered by the ninth meeting of the Conference of the Parties.

280. The Institute of Advanced Studies of the United Nations University has developed Web-based resource tools on biological prospecting in the Antarctic region (see http://www.bioprospector.org/bioprospector/antarctica/search.jsp), and in Pacific Island countries (see http://www.bioprospector.org/bioprospector/pacific/search.jsp). The resource tools include an assessment of the status of bioprospecting activities in these areas (including a database), and resources relating to legislation, policy, economic valuation, access and benefit-sharing and traditional knowledge. In 2008, the Institute expects to publish a comprehensive analysis of the nature and extent of bioprospecting in the Arctic including patent data and information on companies active in marine areas in the Arctic.[147]

IX. Protection and preservation of the marine environment and sustainable development

A. Introduction

281. Ocean resources and uses are fundamental to human well-being and development, including food security, health, transportation, production of energy and resource extraction. Sustainable development of oceans and seas is therefore essential to ensure long-term human prosperity. However, unsustainable uses of the oceans, such as overexploitation of marine resources, in particular fish stocks, as

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[146] Contribution of FAO.

[147] Contribution of the United Nations University.

well as the impacts of human-induced climate change, are altering the state of our oceans and seas in a way that affects not only the natural environment, but also human well-being and economic development. The socio-economic consequences of those changes are potentially immense. Concerted global actions are therefore needed to address the root causes, while local efforts can reduce human vulnerability.[148] Effective cooperation at all levels is key for the sustainable development of the oceans and seas, as is the involvement of all relevant stakeholders, in particular in the context of an ecosystem approach.

282. Thus, while States have the primary responsibility to ensure effective development and implementation of the applicable regime, industry, as a major user of the oceans, also has an important role in international efforts to address marine environmental issues and sustainable development of the oceans and seas. In that respect, the World Ocean Council, an international business and industry alliance for "Corporate ocean responsibility" working in the context of the United Nations Global Compact (www.globalcompact.org), is engaging in a growing portfolio of projects on private sector stewardship of the seas.[149]

283. Civil society also has an important role in promoting integrated approaches, including through awareness-raising and mobilization of multi-stakeholder dialogues. For example, the fourth Global Conference on Oceans, Coasts and Islands, organized by the Global Forum on Oceans, Coasts and Islands, in Hanoi in April 2008, will focus on advancing ecosystem management and integrated coastal and ocean management by 2010 in the context of climate change.

B. Pollution from land-based activities

284. Some 80 per cent of the pollution load in the oceans originates from land-based activities. The marine environment is also threatened by physical alterations of the coastal zone, including destruction of habitats of vital importance to maintain ecosystem health (see http://www.gpa.unep.org). Between 35 to 40 per cent of the world's urban population contribute directly to coastal marine pollution. Many of the industries in operation are situated along the coast. In some cases, in particular in developing countries, limited finances, outdated technology and lack of awareness, among others, has led to uncontrolled discharge of poorly treated or untreated industrial wastewater into adjoining streams, rivers and lagoons, resulting in eutrophication and periodic harmful algal blooms.[150] These and other intense pressures on the coastal systems require serious commitment and preventive action at all levels. Some recent initiatives of the United Nations system in that regard are presented below, while those taken at the regional level are presented in section G of the present chapter.

285. The second session of the Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, in October 2006 (see A/62/66,

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[148] See UNEP, *Global Environment Outlook: environment for development* (GEO4), 2007, chap. 4.

[149] For example, the World Ocean Council reviewed ocean sustainability priorities, stakeholders and issues for the International Petroleum Industry Environment and Conservation Association; and organized a workshop on inter-industry collaboration on environmental management of ports during the "GreenPort/EcoPorts" annual conference.

[150] Contribution of UNIDO.

paras. 268-272, and A/62/66/Add.1, paras. 172-174), had endorsed a new approach for the GPA focused on mainstreaming, financing, and legislative and institutional strengthening. The UNEP/Global Programme of Action Coordination Office is thus focusing on ensuring that efforts by national authorities are integrated into relevant national development processes, including through regional training workshops (see www.gpa.unep.org/content.html?id=388&ln=6). It also launched a multi-stakeholder partnership to address point and non-point sources of nutrients that directly affect human health, well-being and the environment, including marine ecosystems and their associated watersheds.[113]

286. A major focus of the UN-Habitat training and capacity-building activities is to strengthen the environmental planning and management abilities of local authorities, in particular with respect to water and sanitation and solid waste management as part of an integrated approach to poverty reduction and climate change mitigation and adaptation. UN-Habitat and the Asian Development Bank have partnered to improve sanitation in towns and cities in the Mekong River Delta. Other initiatives include the improvement of water and sanitation in coastal cities in Africa and Asia, and support to policy development and capacity-building for cities in the Arctic region.[151]

287. UNIDO, with partners, is developing projects to address global pollution loading with a view to fostering: implementation of national policy, legal and institutional reforms to reduce land-based sources of nitrogen, phosphorus and oxygen-demanding pollutants; innovative demonstration projects and financing options in the agriculture, municipal and industry sectors and in wetland restoration/construction to reduce pollution; and engagement of the business community in identifying solutions. UNIDO has underlined the need to also enhance the capacity of developing countries for utilization of environmentally sound technologies.[150]

C. Degradation of the marine environment resulting from shipping activities

288. Shipping activities can damage the marine environment, for example, in cases of accidents; operational discharges; illegal discharges; physical damage; ballast water discharge; use of toxic anti-fouling paints on ships' hulls; biofouling and collisions with marine mammals. Air pollution and greenhouse gas emissions from ships can also adversely impact the marine environment.

289. When an accident occurs, early and effective action must be taken to control the pollution as provided for in the International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990 and its Protocol of 2000. Instruments which assist in the determination of liability and compensation for damages are also important.

1. Prevention and control

290. The legal regime for international shipping will be further strengthened with the entry into force on 17 September 2008 of the International Convention on the Control of Harmful Anti-fouling Systems on Ships. As of that date, ships will no

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[151] Contribution of UN-Habitat.

longer be permitted to apply or reapply organotin compounds, which act as biocides in their anti-fouling systems; ships either shall not bear such compounds on their hulls or external parts or surface or, for ships already carrying such compounds on their hulls, a coating that forms a barrier to such compounds will have to be applied to prevent them leaching from the underlying non-compliant anti-fouling systems. The Convention also establishes a mechanism to evaluate and assess other anti-fouling systems and prevent the potential future use of other harmful substances in those systems (see IMO, press briefing 30/2007, available from www.imo.org; see also para. 242 above).

291. The General Assembly has called upon States, which have not yet done so, to ratify or accede to the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 to facilitate its entry into force. That Convention, inter alia, requires new ships to meet the ballast water performance standard in its regulation D-2 by 2009. Given the uncertainties as to whether type-approved technology would be immediately available for ships constructed in 2009, the IMO Assembly adopted resolution A.1005(25), which requires ships constructed in 2009 with a ballast water capacity of less than 5,000 cubic metres to install a ballast water management system by the end of 2011, and invited MEPC to review that resolution successively (see IMO, press briefing 51/2007).

292. Other recent developments aimed at protecting the marine environment from shipping activities include the review of MARPOL Annex V (garbage) by MEPC (see MEPC/57/5/1); and the work being carried out in the context of the International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990 and its Protocol of 2000 at the global and regional levels (see paras. 330, 331, 343 and 344 below). As MEPC will meet in March 2008, information on these and other developments will be reported in the addendum to the present report (see also para. 271 above).

2. Liability and compensation

293. Compensation for pollution damage originating from ships is governed by an international regime elaborated under the auspices of IMO, including: the 1992 Protocol to the International Convention on Civil Liability for Oil Pollution Damage, 1969 (1992 Civil Liability Convention);[152] the 1992 Protocol to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971 (International Oil Pollution Compensation Fund, 1992), which adoption resulted in the denunciation of the 1971 Fund; the 2003 Protocol on the Establishment of a Supplementary Fund for Oil Pollution Damage (Supplementary Fund Protocol); and the International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea 1996, which is not yet in force.[153]

294. *International Oil Pollution Funds*. The Administrative Council of the 1971 Fund[154] took note of developments towards the winding up of the Fund, which will take place once all claims arising from pending accidents have been settled and any

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[152] The 1992 Protocol entered into force on 30 May 1996. A large number of States have denounced the 1969 Civil Liability Convention.

[153] For a description of all relevant conventions, see http://www.iopcfund.org/intro.htm.

[154] Record of decisions of the 21st and 22nd sessions of the Administrative Council, 71FUND/AC.21/5 and 71FUND/AC.22/18, respectively.

remaining assets have been distributed in an equitable manner among those persons that have contributed to the Fund (see 71FUND/AC.22/18 and Winding up of the 1971 Fund (71FUND/AC.22/13)). In this context, it took note of issues arising out of the non-submission of oil reports by States,[155] as well as actions to be taken in respect of contributors in arrears.

295. The 1992 Fund continued to consider matters related to the *Erika* (France, 1999), *Prestige* (Spain, 2003), *No7 Kwang Min* (Republic of Korea, 2005), *Solar 1* (Philippines, 2006) and *Shosei Maru* (Japan, 2006) incidents. In relation to the *Solar 1*, the Executive Committee decided that a claim for the cost of a "cash for work" programme initiated to relieve economic hardship was not admissible because the work carried out did not relate to clean-up or preventive measures. With regard to the *Shosei Maru* incident, it was noted that the estimated claimed amount for damages, including at sea and on-shore clean-up operations, cleaning of ships' hulls and damages to seaweed cultivations, was expected to exceed the limitation amount applicable under the 1992 Civil Liability Convention (see 92FUND/EXC.36/10 and 92FUND/EXC.37/9).

296. The Administrative Council of the 1992 Fund approved revised draft technical guidelines on methods of assessing losses in the fisheries, mariculture and fish processing sectors for use by the Fund's experts in assessing claims relating to subsistence fishing. It also adopted for inclusion in the Claims Manual of the Fund a set of admissibility criteria relating to claims for costs of preventive measures to facilitate the consideration of the overall reasonableness of operations undertaken to remove the remaining persistent oil from a sunken ship and to promote the equal treatment of claims for the costs of such operations (see 92FUND/AC.3/A/ES.12/14 and 92FUND/A.12/28).

297. The intersessional Working Group on non-technical measures to promote quality shipping for carriage of oil by sea of the 1992 Fund continued considering the possible connection between compulsory liability insurance and substandard shipping, including legal factors at the national level that allowed, required or prevented marine insurers and the Pollution and Indemnity (P&I) Clubs, and other related businesses, from sharing information on clients. It also considered whether competition law and practices took into consideration the need for measures to encourage quality shipping for the transportation of oil. The Working Group is expected to complete its work by the end of 2008.

298. *International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea 1996.* This Convention currently has nine Contracting States. The International Oil Pollution Compensation Funds' Assembly decided to establish a Focus Group mandated with examining the underlying causes of the issues inhibiting the entry into force of the Convention, and any issues of an administrative nature which would facilitate the operation of the Convention, and with identifying and developing legally binding solutions to those issues in the form of a draft protocol to the Convention. The IMO Legal Committee has expressed its readiness to consider any proposals based on the outcome of the deliberations of the Focus Group.

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[155] The 1971 and 1992 Funds levy contributions from entities in Member States which receive more than 150,000 tons of crude or heavy fuel oil ("contributing oil") in a year after sea transport. Governments provide the Secretariat with reports of oil quantities received, thereby allowing invoices to be sent by the Funds to each contributor.

D. Ocean noise

299. The concerns regarding the potential threat posed by ocean noise to the marine environment are being addressed by a number of international forums, which continue to call for research, monitoring and efforts to minimize the risk of adverse effects on marine living resources. For example, the Biodiversity Committee of OSPAR is preparing a comprehensive overview of the impact of anthropogenic underwater sound in the marine environment.[156]

300. The meeting of the parties to ACCOBAMS (see also para. 270 above) adopted resolution 3.10 entitled "Guidelines to address the impact of anthropogenic noise on marine mammals in the ACCOBAMS Area", which, inter alia, urged parties to act in accordance with the principles enumerated in the resolution as soon as possible. The principles are based on the recommendations and guidelines of the ACCOBAMS Scientific Committee (see A/62/66/Add.1, para. 193). The resolution also established a Correspondence Working Group to address anthropogenic noise deriving from a range of activities, in order to develop appropriate tools to assess the impacts of anthropogenic noise on cetaceans and to further elaborate measures to mitigate such impacts (for the report of the third meeting (October 2007), see www.accobams.org).

301. In accordance with paragraph 107 of General Assembly resolution 61/222 and paragraph 120 of resolution 62/215, the Division has made available on its website the lists of peer-reviewed scientific studies on the impacts of ocean noise on marine living resources it has received from Member States. As at 29 February 2008, lists of such studies have been received from Belgium and the United States.

E. Waste management

302. *Carbon sequestration*. In November 2007, the Meeting of Contracting Parties to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (London Convention) and to the 1996 Protocol thereto (London Protocol) adopted the Specific Guidelines for Assessment of Carbon Dioxide Streams for Disposal into Sub-seabed Geological Formations, which had been prepared by the Scientific Groups (see A/62/66, paras. 289-291). The Guidelines complement the 2006 amendments[157] of Annex 1[158] to the London Protocol, which provide for the regulation of CO_2 sequestration in sub-seabed geological formations (ibid., para. 290). They are based on Annex 2 to the London Protocol, and provide detailed information on: waste prevention audit; waste management options; chemical and physical characterization of the carbon dioxide stream; acceptable materials for dumping through an Action List; site selection and characterization; assessment of potential effects; monitoring and risk management; and permit conditions (for the report of the Meeting, see IMO document LC 29/17, annex 4). The Guidelines also provide for the application of a precautionary approach and the

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[156] A preliminary draft was presented to a meeting of the Working Group on the Environmental Impact of Human Activities (October 2007). For a summary record of that meeting, see EIHA 07/8/1-E, at www.ospar.org/eng/html/welcome.html.

[157] Amendments adopted under resolution LP.1(1), see LC 28/15, annex 6.

[158] Annex 1 provides the list of those specific materials, which constitute an exception to the rule that prohibits the dumping of wastes or other matter under the London Convention.

taking of enforcement procedures to minimize the potential for adverse consequences. Acceptance by Contracting Parties of CO_2 sequestration in sub-seabed geological formations does not remove the obligation under the London Protocol to reduce the need for such disposal (ibid., annex 4, para. 1.5). Finally, the Guidelines will be kept under review and updated in five years, or earlier, as may be warranted in light of new developments (ibid., para. 4.12).

303. The Contracting Parties also instructed the Scientific Group of the London Protocol to develop a specific reporting format for CO_2 sequestration projects to be presented to its next Meeting in October 2008. Since CO_2 storage may be permanent, it would be necessary to archive records of authorizations and licensing processes together with data of long-term monitoring and management response capabilities. The reporting format would list the items that Contracting Parties would have to include in their reports. In that regard, the Group was instructed to liaise with other organizations recording CO_2 sequestration and carbon credits, such as OSPAR (ibid., para. 4.11) (see also para. 340 below).

304. *Transboundary movement of CO_2 streams*. During the preparation of the Guidelines, it was proposed that in order to comply with appropriate Action Lists or other relevant regulations, if CO_2 streams injected into a sub-seabed geological formation were expected to cross jurisdictional boundaries between two or more countries, a notification would need to be sent to neighbouring countries and their input sought, before a permit could be issued (ibid., para. 4.4). In response, the Contracting Parties established a Legal and Technical Working Group on transboundary CO_2 sequestration issues to prepare comprehensive advice on the matter. The Group will analyse all scenarios by which CO_2 streams intended for sequestration in sub-seabed geological formations are collected, treated, transported and sequestered, in cases involving transboundary movements of CO_2 streams (for the draft agenda of the first meeting, see LP/CO2 1/1/1). It will also consider whether and how the transboundary movement of CO_2 for and during sub-seabed sequestration in geological formations relates to article 6 of the London Protocol,[159] and whether an amendment to that provision is necessary. In case the Group concludes that such additional regulation is necessary, it is expected to develop a text of a possible amendment, along with an overview of its advantages and disadvantages (ibid.). Finally, the Group will examine the need for monitoring requirements additional to the CO_2 Sequestration Guidelines and notification, reporting, information-sharing and permit requirements (ibid.). The Working Group met in February 2008.

305. *Iron fertilization of oceans*. The summary report of the Intergovernmental Panel on Climate Change on potential mitigation measures stated that "geo-engineering options, such as ocean fertilization to remove CO_2 directly from the atmosphere [...] remain largely speculative and unproven, and with the risk of unknown side-effects".[160] The Contracting Parties to the London Convention and Protocol endorsed the "statement of concern" issued by the Scientific Groups to the London Convention and Protocol regarding the technology of large-scale nutrient fertilization of ocean waters using iron to sequester carbon dioxide (see

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[159] Article 6 of the London Protocol prohibits the export of wastes or other matters to other countries.

[160] Intergovernmental Panel on Climate Change, 2007. Summary for Policymakers IPCC Fourth Assessment Report, Working Group III, p. 20, para. 17.

LC/SG 30/14, paras. 2.23-2.25, and A/62/66/Add.1, para. 201). The Contracting Parties had received other statements of concern, including from the Permanent Commission for the South Pacific and by Vanuatu,[161] on a plan by the company "Planktos" to use several tons of iron nano-particles to "fertilize" an area of approximately 10,000 square kilometres of the Pacific Ocean around the Galapagos Islands. While recognizing that it was in the purview of each State to consider proposals on a case-by-case basis, in accordance with the London Convention and Protocol, the Contracting Parties urged States to use caution when considering proposals for large-scale fertilization operations, which, given the present state of knowledge, the governing bodies considered currently not justified (see LC/29/17, para. 4.23). This was reiterated by the General Assembly in paragraph 97 of its resolution 62/215. The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection and the Scientific Committee on Oceanic Research have issued a joint position urging transparency and independent evaluation on deliberate nutrients additions to the oceans.[162]

306. The Contracting Parties recognized their competence to address the issue of iron fertilization in the broader context of ocean fertilization and agreed to further study the issue from the scientific and legal perspectives with a view to its regulation. To that effect, the Parties established a legal intersessional correspondence group to develop a checklist of legal issues that need to be addressed on whether and how the legal framework of the London Convention and Protocol applies to key scenarios on ocean fertilization. That checklist will be forwarded to the meetings of the Scientific Groups in May 2008 (for details on the agenda, see LC/SG 31/1/1).

307. *Disposal of toxic wastes*. In August 2006, thousands of tons of hazardous waste were dumped by a ship[163] at various sites around Abidjan, leading to the contamination of the sewage system and other water sources. UNEP and the Secretariat of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal are supporting recovering activities of the contaminated areas through the UNEP trust fund for Côte d'Ivoire to assist with the clean-up (see A/62/66/Add.1, para. 205), and on an interim basis, under the Basel Convention Technical Cooperation Trust Fund to provide emergency assistance in so far as the matter falls within the scope of the Basel Convention.[164]

F. Area-based management tools

308. Area-based management tools include MPAs, fisheries closures, biosphere reserves, special areas and PSSAs. The choice of the most appropriate tools depends on the management objective being pursued (see also A/62/66/Add.2, chap. IV).

309. *MPAs*. In October 2007, the Convention on Biological Diversity Expert Workshop on Ecological Criteria and Biogeographic Classification Systems for Marine Areas in Need of Protection agreed on a list of scientific criteria for identifying ecologically or biologically significant marine areas in need of

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[161] See CPPS and Vanuatu statements in LC 29/17, para. 4.18 and annex 5, respectively.

[162] See joint press release, 4 March 2008, available from www.gesamp.org/page.php?page=2.

[163] The *Probo Koala*, a vessel chartered by "Trafigura", an independent commodity trader Group.

[164] Open-ended Working Group of the Basel Convention, Decision VIII/1 on Côte d'Ivoire, Note by the Secretariat (UNEP/CHW/OEWG/6/2), para. 2.

protection, in open oceans and deep-sea habitats, which included: uniqueness or rarity; special importance for life history stages of species; importance for threatened endangered or declining species and/or habitats; vulnerability, fragility, sensitivity or slow recovery; biological productivity; biological diversity; and naturalness. The Workshop also agreed that ecologically and biologically significant areas, representativity, connectivity, replicated ecological features, adequate and viable sites are the scientific criteria and guidance to be used for selecting areas to establish a representative network of MPAs, including in open ocean waters and deep-sea habitats. The Workshop further agreed on four initial steps to be taken in the development of representative networks of MPAs (see UNEP/CBD/SBSTTA/13/INF/14).

310. The thirteenth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice of the Convention on Biological Diversity (see para. 260 above) requested information on aligning and nesting regional and subregional biogeographic classifications, which are currently available or under development, within a global context, to be made available to Parties at future meetings of the Subsidiary Body before the tenth Conference of Parties. No agreement could be reached on a recommendation on the outcomes of the Expert Workshop.

311. At the European Symposium on Marine Protected Areas, held in Spain in September 2007, the topic of MPAs as a tool for fisheries management and ecosystem conservation was addressed, including the ecological effects of MPAs; their effects on fisheries and other uses; assessment of MPA performance; tools for MPA planning and design; and management issues and stakeholders (see www.mpasymposium2007.eu).

312. A number of activities for the designation of MPAs and networks of such areas are ongoing at the regional level (see section G below). In its resolution 62/215, the General Assembly specifically acknowledged the Micronesia Challenge, the Eastern Tropical Pacific Seascape project and the Caribbean Challenge, which in particular seek to create and link domestic MPAs to better facilitate ecosystem approaches, and reaffirmed the need for further international cooperation in support of such initiatives.

313. *Fisheries closures and related measures*. In September 2007, the Commission of the Northwest Atlantic Fisheries Organization adopted interim measures to establish a Coral Protection Zone closing all fishing activity involving bottom contact gear for a large area in Division 3O from 1 January 2008 until 31 December 2012.[165] In October 2007, the Commission of the South East Atlantic Fisheries Organization decided that resumption of fishing activities in several closed areas must be preceded by the identification and mapping of VMEs in the area, including seamounts, hydrothermal vents and cold water corals, and an assessment of the impact of any resumption of fishing on such ecosystems.[166] In a recommendation adopted in November 2007, the North-East Atlantic Fisheries Commission provided

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[165] Interim Measures to Prevent Significant Adverse Impacts on Vulnerable Marine Ecosystems, FC Doc. 07/24, annex 24.

[166] Conservation measure 11/07 laying down conditions for the resumption of fishing activities in areas subject to closure through conservation measure 06/06.

for the closure of certain areas in its Regulatory Area in order to protect deep-water corals.[167]

314. *Biosphere reserves and spatial planning*. In February 2008, the third World Congress of Biosphere Reserves evaluated the progress and challenges for biosphere reserves and elaborated the Madrid Action Plan for Biosphere Reserves in the 21st century (see www.unesco.org/mab/madrid/congress2008.shtml). The Action Plan outlines actions, targets and success indicators, partnerships and other implementation strategies and an evaluation framework for the work of the UNESCO Man and the Biosphere Programme and its World Network of Biosphere Reserves for the period 2008-2013, with a focus on the potential and role of biosphere reserves in addressing emerging challenges, namely rapid urbanization, accelerated climate change and loss of biological and cultural diversity and unexpected consequences that impact the ability of ecosystems to provide services (ibid.). The Congress also adopted the Madrid Declaration on the UNESCO Man and the Biosphere (MAB) Programme and the World Network of Biosphere Reserves (WNBR), which, inter alia, urges the optimum use of biosphere reserves for the promotion of sustainable development, and capitalizing upon the potential of biosphere reserves, among others, as places for investments and innovation to mitigate and adapt to climate change, and to enhance and capitalize upon ecosystem services and products for human well-being, among others (ibid.).

315. The Islas Marietas Biosphere Reserve in Mexico, a rich convergence zone for marine species from the central and southern Mexican Pacific and from the Gulf of California and the Pacific coast of Baja California, has been included in the UNESCO World Network of Biosphere Reserves. It is an important site for scientific investigation and is critical to the reproductive processes of at-risk species, such as the Humpback whale.

316. Drawing on existing good practices, UNESCO-IOC and the Man and the Biosphere Programme are jointly developing a Manual containing a set of guidelines and principles for the implementation of ecosystem-based marine spatial management, making use of the experience of the biosphere reserves (see http://ioc3.unesco.org/marinesp).

317. *PSSAs*. IMO had approved, in principle, the proposal [illegible]mitted by the United States to designate the Papahānaumokuākea Marine National Monument (north-western Hawaiian Islands) as a PSSA. In October 2007, MSC approved the associated protective measures (see A/62/66/Add.1, paras. 68 and 69) and decided that they should be implemented as of 1 May 2008 following final designation of the area as a PSSA.[61]

G. Regional cooperation

318. Regional cooperation remains essential in addressing global challenges facing the marine environment while taking into account specific local ecological, environmental, economic and socio-economic conditions. Activities have intensified in a number of regions towards the implementation of ecosystem approaches and integrated ocean management, and addressing emerging challenges. However, progress is uneven. Following a brief overview of the activities of UNEP Regional

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[167] Recommendation IX: 2008, see www.neafc.org/measures/current_measures/docs/09-rec_corals.pdf.

Seas Programme, which provides the overarching framework for cooperation among regional seas, the present section provides information on major developments within each regional sea programme, as well as relevant activities undertaken by other regional entities.

1. UNEP Regional Seas Programme[168]

319. The ninth Global Meeting of the Regional Seas Conventions and Action Plans in October 2007, adopted the Jeddah Declaration on "Furthering the implementation of the Regional Seas Conventions and Action Plans towards the sustainable development of the marine and coastal environment", in which participants resolve, among others, to develop and implement actions to adapt to the impacts of climate change, to enhance the application of ecosystems approaches to coasts, oceans and large marine ecosystems and island management, and to integrate and mainstream economic valuation of goods and services provided by coastal and marine resources (see http://www.unep.org/regionalseas/RS_Global_Meetings/9th_Global_Meeting/JD/Final_Jeddah_Declaration.pdf). The meeting also adopted the new Global Strategic Directions for the Regional Seas Programme 2008-2012, which is aimed at paving the way for addressing emerging marine and coastal issues, including climate change, deep-sea biodiversity, conservation and sustainable use of high seas resources and exploitation of the seabed. The Strategic Directions also provide a framework for implementation that acknowledges the linkages between marine and coastal ecosystems services with economic and human development.

320. In order to encourage a more concerted and comprehensive response to relevant General Assembly resolutions regarding marine debris, UNEP and FAO have undertaken a global review on derelict fishing gear,[169] which aims to, inter alia, assess the feasibility of joint programmes and activities between regional fisheries bodies and regional seas organizations. UNEP-Regional Seas Programme is also cooperating with IOC-UNESCO in the development of operational guidelines on survey and monitoring of marine litter. With other partners, it is developing guidelines on the use of market-based and economic instruments to address the problem of marine litter. At the regional level, work has continued in the context of the global initiative on marine litter, coordinated by UNEP-Regional Seas Programme, in the Baltic, Black Sea, Caspian Sea, East Asian Seas, Eastern Africa, Mediterranean Sea, North-East Atlantic, North-West Pacific, Red Sea and Gulf of Aden, South Asian Seas, South-East Pacific, and Wider Caribbean. UNEP-Regional Seas Programme has also continued to provide support to several regional seas on other issues, in particular the development and revision of protocols on pollution from land-based activities.

2. Antarctic

321. The Antarctic region faces a number of pressures, including introduction of non-native species, tourism,[170] climate change, and pollution, as reflected in the

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[168] Prepared on the basis of the contribution of UNEP-RSP.

[169] Study entitled "The problem of derelict fishing gear: global review and proposals for action".

[170] Both the International Association of Antarctica Tour Operators and non-Assocation Antarctic tourism activities resulted in an estimated total of 37,506 tourists entering the Antarctic Treaty Area, a 14 per cent increase in visits over the 2005/06 season. See Overview of Antarctic Tourism 2006-2007 Antarctic Season, document IP121 submitted to the 30th Antarctic Treaty Consultative Meeting.

high priority accorded to these issues by the Antarctic Committee for Environmental Protection in its provisional five-year workplan. The Committee also placed high priority on the identification of processes for the designation of MPAs.[171]

322. In May 2007, the Antarctic Treaty Consultative Meeting recommended that Parties discourage or decline to authorize tour operators that use vessels carrying more than 500 passengers from making any landings in Antarctica (resolution 4 (2007)). It also agreed to examine intersessionally further steps to address passenger vessels in the Antarctic Treaty area, recognizing that IMO is considering Guidelines for ships operating in Arctic and Antarctic ice-covered waters,[172] and recommended that Parties discourage any tourism activities which may substantially contribute to the long-term degradation of the Antarctic environment and its dependent and associated ecosystems (resolution 5 (2007)).

323. The Meeting agreed that intersessional work should identify issues and current activities related to biological prospecting in the Antarctic Treaty Area.[172] It also welcomed the progress made by the Convention on the Conservation of Antarctic Marine Living Resources in reducing IUU fishing in the Convention Area.[173]

3. Arctic

324. The Arctic Council is developing a project aimed at examining the concepts and practices of Arctic countries for implementing integrated ocean management and an ecosystem-based approach.[174] Projects are also under development in relation to climate change impacts assessment, including the impacts of reduction in sea ice, melting of the Greenland ice sheet, and changes in snow cover and permafrost conditions, and on the sharing of expertise in climate change adaptation, best practices and possible actions. A draft 2010 Arctic biodiversity assessment work plan and financial strategy has been developed.[175]

325. Preparations for the Arctic Marine Shipping Assessment are under way and the updated Arctic Offshore Oil and Gas Guidelines and Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-based Activities are expected to be presented to the Arctic Council Ministerial Meeting in 2009.[174]

4. Baltic

326. The Baltic Sea Action Plan, which aims to drastically reduce pollution and restore the good ecological status of the Baltic by 2021, was adopted in November 2007. It identifies actions at the national and regional levels to achieve agreed targets within a given time frame in relation to eutrophication, hazardous substances, maritime safety and accidents response capacity, and habitat destruction

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[171] Appendix 1: Provisional Five-Year Work plan for the CEP, *Report of the Committee for Environmental Protection* (CEP X), available at http://30atcm.ats.aq/30atcm/Documents/Docs/att/Atcm30_att084_rev1_e.doc.

[172] 30th Antarctic Treaty Consultative Meeting Final Report, available from http://30atcm.ats.aq/30atcm/Documents/docFinalReport.aspx.

[173] Report of the 25th Meeting of the Convention on the Conservation of Antarctic Marine Living Resources, 23 October to 3 November 2006, available from http://www.ccamlr.org.

[174] Progress Report of the Working Group on the Protection of the Arctic Marine Environment to Senior Arctic Officials, available from http://www.arctic-council.org.

[175] Progress report of the Working Group on the Conservation of Arctic Flora and Fauna to Senior Arctic Officials, available from http://www.arctic-council.org.

and biodiversity. The Plan, which is based on ecological objectives, aims to implement an ecosystem approach.[176] The GEF/World Bank-funded Baltic Sea Regional Project will be renamed the Baltic Sea Large Marine Ecosystem Project.[177]

327. During 2007, the States bordering the Baltic also adopted the Thematic Assessment of Climate Change in the Baltic Sea Area (see HELCOM document 3/13); draft Guidelines for disposal of dredged material at sea; and recommendations on, inter alia: the application of the "no-special-fee" system to ship-generated wastes in the Baltic Sea Area (see HELCOM 28/2007, recommendation 28/1); recording of fuel oil bunkering operations and documentation for the use of reception facilities (ibid., recommendation 28/2); and Guidelines on bunkering operations and ship to ship cargo transfer of oils, subject to Annex I of MARPOL 73/78 (ibid., recommendation 28/3). Work is ongoing to develop a road map towards harmonized implementation of the Ballast Water Management Convention.

328. Also approved was a draft project proposal on large-scale spatial planning.[178] HELCOM considered an assessment of the biological coherence of the network of Baltic Sea protected areas, which currently covers slightly over 6 per cent of the Baltic Sea area with 78 protected areas designated so far (see HELCOM document 3/6), and stressed the need to facilitate cooperation between HELCOM and OSPAR in evaluation of the status of the joint network of MPAs.

5. Black Sea

329. During 2007, work continued to update or amend, as appropriate, the Strategic Action Plan for the Rehabilitation and Protection of the Black Sea, the Convention on the Protection of the Black Sea against Pollution, 1992, and the Protocol of the Black Sea Marine Environment against Pollution from Land-Based Sources, 1995, and its Annexes. The amended Convention identifies decline in commercial species/fish stocks, nutrient over-enrichment/eutrophication, alien species introduction, chemical pollution, coastal erosion, changes in the flow from rivers, habitat and biodiversity changes, and climate change as priority issues. Draft guidelines on environmental impact assessment in a transboundary context were also developed. Projects on habitat classification and mapping were undertaken with a view to designating MPAs and networks of such areas.

330. As a result of the spilling of over 2,000 tons of fuel oil and sulphur into the Black Sea following the sinking of several cargo ships in November 2007, the European Parliament called on the European Council and the Commission to step up cooperation with non-European Union riparian States on the implementation of measures to lessen the threat of pollution from shipping accidents, including through action taken in the context of IMO and the Paris MOU.[179]

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[176] Contribution of HELCOM. The Plan is available at http://www.helcom.fi/BSAP/en_GB/intro/.

[177] Minutes of the 28th Meeting of Baltic Marine Environment Protection Commission (HELCOM 28/2007), 7-8 March 2007, Helsinki, Finland. See also HELCOM documents 4/1 and 4/2.

[178] Minutes of the 21st Meeting of the Heads of Delegation (HELCOM HOD 21/2007), June 2007.

[179] European Parliament resolution of 13 December 2007 on the shipping disasters in the Kerch Strait in the Black Sea and the subsequent oil pollution (European Union document P6_TA(2007)0625).

6. Caspian Sea

331. The first Meeting of the Conference of the Parties to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea (Tehran Convention), held in Baku from 25-27 May 2008, adopted a one-year programme of work, which includes the elaboration of a Convention Action Plan as well as national implementation plans, the development of an environmental partnership agreement with the oil industry, and the finalization of draft protocols in priority areas of concern.[180] It is intended that the protocols on conservation of biodiversity, pollution from land-based sources and activities, and on environmental impact assessment in a transboundary context will be ready for adoption at the second meeting of the Conference of the Parties in 2008, and that the protocol on regional preparedness, response and cooperation in combating oil pollution incidents will be opened for signature before or at that meeting.[181]

332. A regional pollution monitoring programme, an environmental monitoring programme, a seal conservation plan, a biodiversity data system and a study of national legislations regarding control of invasive species has been prepared.[182]

7. East Asian Seas

333. The new strategic direction for the East Asian Seas, adopted in January 2008,[183] identifies as its priority thematic areas: marine and land-based pollution, coastal and marine habitat conservation, and management and response to coastal disasters. Those areas are to be addressed through the four interlinked strategies on information management, national capacity-building, strategic and emerging issues and regional cooperation. A state of the marine environment report for the East Asian Seas region is under development.

334. In addition, proposals for projects to support tsunami-affected countries through the strengthening of capacity for sustainable coastal zone planning were developed and approved for funding.

8. Eastern and Western Africa

335. The parties to the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention) and the parties to the Convention for Cooperation in the Protection and Development of the Marine and Coastal Environment in the West and Central African Region (Abidjan Convention) held a joint meeting in Johannesburg, South Africa, in November 2007. They considered draft protocols on land-based activities and sources of pollution for each of these regions and adopted four-year work programmes including action-oriented targets for ecosystem-based coastal and marine management for each Convention. In a Joint Declaration, participants

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[180] Report of the first Meeting, document TC/COP1/INF.5, available from http://www.unep.ch/roe/Caspian_cop1_adopteddocs.htm.

[181] Ibid., statement of Ministers at the first Meeting, 25 May 2007.

[182] Contribution of the Caspian Environment Programme.

[183] Report of the nineteenth Meeting of the Coordinating Body on the Seas of East Asia on the East Asian Seas Action Plan, held in Siem Reap, Cambodia, on 22 and 23 January 2008 (UNEP(DEPI)/EAS IG.19/3).

renewed their Governments' commitments to the implementation of the two Conventions in the context of the New Partnership for Africa's Development.[184]

9. Mediterranean

336. The 1996 Protocol on the Prevention of Pollution of the Mediterranean Sea by the Transboundary Movements of Hazardous Wastes and their Disposal to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) has entered into force. The parties to the Barcelona Convention have adopted a new Protocol on Integrated Coastal Zone Management in the Mediterranean, which opened for signature on 21 January 2008. They have also finalized procedures and mechanisms to address compliance with the provisions of the Convention and its Protocols, which include the establishment of a compliance committee; and adopted a set of Guidelines for the determination of liability and compensation for damage resulting from pollution of the marine environment in the Mediterranean Sea Area.[185]

337. The parties also adopted guidelines for controlling vectors of introduction of non-indigenous species and for implementing risk assessment; added four new areas to the List of specially protected areas of Mediterranean importance, all located in Italy; and adopted a decision on the Implementation of the Ecosystem Approach to the Management of Human Activities that may affect the Mediterranean Marine and Coastal Environment. The GEF Strategic Partnership for the Mediterranean Large Marine Ecosystem will be launched in 2008.[185]

338. In the Almeria Declaration, the parties decided on a number of initiatives to adapt to and mitigate the effects of climate change. In particular, they agreed to promote measures for the establishment of a comprehensive and coherent Mediterranean network of coastal and MPAs by 2012. They further agreed to address liability issues for storage of carbon dioxide streams in Mediterranean sub-seabed geological formations as well as for any other mitigation measures with a potential impact on the marine environment.[185]

339. In May 2007, the focal points of the Regional Marine Pollution Emergency Responce Centre reviewed guidelines on prevention of pollution from pleasure craft activities, as well as guidelines on places of refuge for ships in need of assistance. Port reception facilities for collecting ship-generated wastes were also discussed, with specific emphasis on the Special Area status of the Mediterranean under MARPOL.[186]

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[184] Report of the fifth Meeting of the Contracting Parties to the Nairobi Convention (UNEP(DEPI)/EAF/CP.5/10) and Report of the eighth Meeting of the Contracting Parties to the Abidjan Convention (UNEP(DEPI)/WAF/CP.8/10).

[185] See report of the 15th Ordinary Meeting of the Contracting Parties to the Barcelona Convention and its Protocols, held in Almería, Spain, from 15-18 January 2008 (UNEP(DEPI)/MED IG.17/10).

[186] Report of the eighth Meeting of Focal Points of the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea, held in Malta, from 7-11 May 2007 (REMPEC/WG.28/13), available from www.rempec.org/admin/upload/publications/REMPEC%20FPM%2007%20Final%20Report%20CONSOLIDATED%20(E).pdf.

10. North-East Atlantic

340. In June 2007, OSPAR adopted a number of measures to allow the storage of CO_2 streams in sub-soil geological formations provided they will be retained in these formations permanently and will not lead to significant adverse consequences for the marine environment, human health and other legitimate uses of the maritime area.[187] By Decision 2007/1, the Commission also decided that, with effect from 15 January 2008, the placement of carbon dioxide streams in the water column or on the seabed is prohibited, unless it results from normal operations as described in the Convention or is for a purpose other than the mere disposal thereof (see Summary Record of the Ospar Commission meeting of 25-29 June 2007, annex 5).

341. The Commission also considered, among others, the status of the network of MPAs, now composed of 87 sites (OSPAR document 07/6/6). In particular, the Commission agreed that: the size of the OSPAR network of MPAs needed to be increased substantially; sites further offshore and especially in the Parties' EEZs should be selected (OSPAR document 07/6/1, annex 3); and OSPAR should continue to intensify its efforts to identify sites in need of protection in areas beyond national jurisdiction (see also A/62/66/Add.2, para. 135). The meeting also endorsed a list of OSPAR work on marine spatial management.

342. OSPAR adopted the Agreement on a Voluntary Marine Beach Litter Monitoring Programme (see Summary Record, annex 10). In the context of the regional Ballast Water Management Convention Strategy for North-West Europe, OSPAR agreed, in principle, to the draft General Guidelines on the voluntary interim application of the D-1 Ballast Water Exchange Standard in the North-East Atlantic (ibid., annex 9).

11. North-West Pacific

343. Work on harmful algal blooms, input of pollutants from land-based sources, and accidental spills of oil and hazardous chemicals is continuing in the region. A report on the state of the marine environment in the North-West Pacific Region was prepared and is expected to contribute to the global assessment of the state of the marine environment. Reports on coastal and MPAs, as well as data and information on marine biodiversity in the North-West Pacific were also prepared. The North-West Pacific Region Intergovernmental Meeting, in October 2007, considered, among others, the draft regional oil and hazardous and noxious substance spill contingency plan.[188] In response to the oil spill that occurred in the Republic of Korea in December 2007, the current Regional Oil Spill Contingency Plan was activated upon the request of the Korean Government (see http://www.nowpap.org).

12. Pacific

344. During 2007, the Secretariat of the Pacific Regional Environment Programme (SPREP) focused on coastal management, protection of marine species and ecosystems and marine pollution. National plans of action on land-based sources of

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[187] See amendments to Annex II and III to the Convention, Decision 2007/2, and the OSPAR Guidelines for Risk Assessment and Management of Storage of Carbon Dioxide Streams in Geological Formations, OSPAR 07/24/1-E.

[188] Report of the twelfth Intergovernmental Meeting of the Northwest Pacific Action Plan, held in Xiamen, China, from 23-25 October 2007 (UNEP/NOWPAP IG. 12/11).

marine pollution were assisted in Kiribati, Tonga and Vanuatu, and oil pollution workshops were conducted to assist 13 Pacific Island countries in acceding to and ratifying the Convention on Oil Pollution Preparedness, Response and Cooperation and the Noumea Convention. Regional consultations on an Action Plan to implement the Pacific Islands Framework for Action on Climate Change were also convened. A project on climate change effects on marine biodiversity was initiated, focusing on management tools, such as economic valuation and socio-economic monitoring.

345. In September 2007, the SPREP Meeting of officials identified 2008 as the Pacific Year of the Coral Reef. It also considered, among others, genetic resources in Pacific Island countries and agreed to establish an e-mail network of relevant officials to continue the discussion and information exchange on that issue. The meeting endorsed a revised Marine Species Programme Framework for 2008-2012, with the inclusion of sharks as a species of special interest, and directed the Secretariat to collaborate with other relevant regional organizations towards the development of a regional action plan for sharks.[189]

346. In October 2007, the Pacific Islands Conference on Nature Conservation and Protected Areas reviewed the Action Strategy for Nature Conservation in the Pacific Islands Region 2003-2007, in particular its three environmental objectives focusing on protected areas/ecosystems, species and invasive alien species, considered the development of a regional framework for the next five years, and discussed gaps and opportunities for ongoing conservation work (see http://www.sprep.org/Roundtable).

13. South-East Pacific

347. In November 2007, the Parties to the Convention for the Protection of the Marine Environment and Coastal Areas of the South-East Pacific (Lima Convention) adopted resolutions on, inter alia: MCS of marine pollution; marine litter; and conservation of sea turtles. In 2008, activities will be undertaken related to marine bio-invasion, mitigation of anthropogenic impacts on marine mammals, the regional network of MPAs, integrated coastal zone management, and assessment of the regional environmental instruments.

348. At a meeting to elaborate a regional common position regarding ocean iron fertilization in the waters of the South-East Pacific, countries of the region declared their serious concern regarding any activity, without the corresponding scientific research, related to the large-scale disposal of iron or other substances in marine areas under the jurisdiction of South-East Pacific States or beyond, insofar as the oceanic circulation influences marine areas within States' jurisdiction or their natural resources.

14. South Asian Seas

349. An MOU and a draft oil and chemical spill contingency plan for South Asian Seas are expected to be adopted in 2008. Work is also ongoing on a project aimed at institutional strengthening and capacity development for the long-term management and conservation of marine and coastal protected areas encompassing coral reef resources in South Asia. The Coral Reef Task Force, created in the context of the

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[189] Report of the 18th SPREP Meeting, 11-14 September 2007, Apia, Samoa, SPREP (Apia, 2007).

project, is expected to develop a regional action plan on coral reef conservation and long-term management and conservation of MPAs.[190]

15. Other regional organizations

350. *Caribbean Community and Association of Caribbean States*. The Caribbean Sea Ecosystem Assessment Report, published in 2007, which presents conditions and trends in the status of the ecosystem, develops a number of scenarios for action and reviews responses available to decision makers, notes that tourism and fishing are two of the most important ecosystem services for the region. It further highlights, among others, the following major drivers of change in the Caribbean Sea ecosystem: changes in coastal land and sea use, land-based pollution, overfishing, urbanization of coastal communities, lack of coordinated governance, climate change, and alien species introduction.[191] In July 2007, the Caribbean Community reiterated its concern over the conservation and protection of its natural environment and the maintenance of its biodiversity, and support for its initiative to have the Caribbean Sea recognized as a special area in the context of sustainable development.[192]

351. The Ministerial Council of the Association of Caribbean States at its thirteenth Ordinary Meeting, held in Panama City, on 25 January 2005, approved the work programme of the Caribbean Sea Commission. The Commission had been established to follow-up on the Caribbean Initiative the main purpose of which is to have the Caribbean Sea declared a "special area in the context of sustainable development".[193] The work programme of the Commission lists activities and possible partners in relation to: governance; scientific research and data collection in the field of natural resources, transport and hazardous substances, eutrophication, tourism, and socio-economic studies; and monitoring, reporting and evaluation.

352. The Association of Caribbean States also continued to monitor progress in the implementation of the Convention Establishing the Sustainable Tourism Zone of the Caribbean and the project on the selection and evaluation of the destinations of the Zone.

353. *European Union*. The Marine Strategy Framework Directive adopted by the European Parliament and Council in December 2007, establishes a Framework for Community Action in the field of Marine Environmental Policy. It aims to achieve good environmental status of the European Union's marine waters by 2020 and to protect the resource base upon which marine-related economic and social activities depend. It will establish European Marine Regions on the basis of geographical and environmental criteria (see www.europarl.europa.eu/sides/getDoc.do?type=TA&language=EN&reference=P6-TA-2007-0595). The European Environment Agency supports the development of the monitoring and assessment components of the Strategy, including by working towards the establishment of a limited set of

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[190] Contribution of the South Asia Cooperative Environment Programme.

[191] *Caribbean Sea Ecosystem Assessment. A sub-global component of the Millennium Ecosystem Assessment*, Caribbean Marine Studies, Special Edition, 2007.

[192] Declaration on Functional Cooperation, issued by the Heads of Government of the Caribbean Community on the occasion of the twenty-eighth Regular Meeting of the Conference of Heads of Government of CARICOM, Needham's Point, Barbados, 1-4 July 2007, available at www.caricom.org.

[193] Contribution of the Association of Caribbean States; see also A/62/66, para. 315.

common pan-European indicators for the marine environment.[194] The Strategy will constitute the environmental pillar of the Integrated Maritime Policy for the European Union.[195]

X. Climate change

354. The oceans play a fundamental role in the climate system, as ocean-climate coupling regulates and mitigates the exchange of heat, carbon and water within the Earth's systems (see A/62/644). Climate change will affect the physical parameters of the oceans, such as temperature, strength of currents and chemistry,[196] and these impacts are becoming increasingly evident. Recent studies indicate that, while atmospheric CO_2 is increasing, the ability of the oceans to absorb CO_2 may be decreasing.[197] Sea levels are rising faster than expected and warming from a business-as-usual emissions path could lead to a sea-level rise of 0.5 to 1.4 metres in this century.[198] In 2007, sea ice extent in the Arctic Ocean shrank to its smallest on record, surpassing the previous record in 2005 by 23 per cent.[199]

355. The potential effects of climate change on ocean thermohaline circulation and natural mechanisms, sea temperature, marine life distribution, coral reefs, and ocean acidity, will compound the impacts of other stressors, such as coastal development and pollution, overfishing and unsustainable fishing practices, and invasive species.[196] The worst concentration of these cumulative impacts appear to be in 10-15 per cent of the world's oceans, which harbour the most productive fishing grounds, responsible for more than half of global marine landings. Furthermore, changes to ocean thermohaline circulation and natural "flushing and cleaning" mechanisms could impact coastal water quality and nutrient cycling and deep-water production in more than 75 per cent of the world's fishing grounds.[196]

356. The impact of climate change on marine, coastal, estuarine and freshwater ecosystems is thus likely to affect many people directly or indirectly dependent on fisheries for their livelihoods and result in heightened vulnerability of communities

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[194] Contribution of the European Environment Agency.

[195] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, "An Integrated Maritime Policy for the European Union" (COM(2007) 575 final).

[196] C. Nellemana, S. Hain and J. Alder (editors), *In Dead Water: Merging of climate change with pollution, over-harvest, and infestations in the world's fishing grounds*, UNEP, GRID-Arendal (February 2008), available from www.unep.org.

[197] Recent studies found that CO_2 uptake in a North Atlantic study region declined by more than 50 per cent between the mid 1990s and the period 2002-2005, and that the Southern Ocean's annual capacity to absorb CO_2 weakened by 80 million metric tons per decade between 1981 and 2004 (see *UNEP Year Book 2008: An Overview of Our Changing Environment*, available at www.unep.org). See also A/62/66/Add.1, para. 226.

[198] UNEP, *Yearbook*, op. cit. Melting of the Greenland ice sheet took place 25-30 days longer in 2007 than the observed average in the previous 19 years. 2007 also marked an overall rise in the melting trend over the entire Greenland ice sheet, and melting in high-altitude areas surpassed any previously recorded, at 150 per cent more than average.

[199] UNEP, *Yearbook*, op. cit. Some studies have projected an ice free Arctic by 2040. In late 2007, researchers proposed that the Arctic summer may be ice free by 2013.

with increasing prevalence of natural disasters, such as flooding and cyclones.[200] Global temperature increases of 3-4°C could also result in 330 million people being permanently or temporarily displaced through flooding, with catastrophic consequences, in particular, for small island States.[201]

357. Other sections of the present report address various aspects of climate (see paras. 302-306 above), including adaptation measures at regional levels (see also paras. 319, 324, 338 and 344 above).[202] The following section will focus on recent developments relating to the Intergovernmental Panel on Climate Change and the United Nations Climate Change Conference in Bali, as well as other recent policy developments.

A. Intergovernmental Panel on Climate Change

358. The Panel released its Synthesis Report in November 2007, which was based on the assessment carried out by its three Working Groups (see A/62/66, paras. 327-330, and A/62/66/Add.1, paras. 228-235), and provided an integrated view of climate change as the final part of the Panel's Fourth Assessment Report (AR4) (available from http://www.ipcc.ch). The Synthesis Report confirmed that warming of the climate system was unequivocal, as was now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level. The Synthesis Report concluded with high confidence that global warming over many centuries would lead to a sea level rise contribution from thermal expansion alone, which was projected to be much larger than observed over the twentieth century, with loss of coastal area and associated impacts. Sea level rise under warming was inevitable and thermal expansion would continue for many centuries after greenhouse gas concentrations had stabilized, causing an eventual sea level rise much larger than projected for the twenty-first century. Long-term thermal expansion alone was projected to result in global average sea level rise at equilibrium of 0.2 to 0.6 metre per degree Celsius of global average warming above the pre-industrial level.

359. There was also better understanding that the risk of additional contributions to sea level rise from both the Greenland and possibly Antarctic ice sheets may be larger than projected by ice sheet models and could occur on century time scales. This was because ice dynamical processes seen in recent observations, but not fully included in ice sheet models assessed in AR4, could increase the rate of ice loss. The eventual contributions from Greenland ice sheet loss could be several metres, and larger than from thermal expansion, should warming in excess of 1.9-4.6°C above the pre-industrial level be sustained over many centuries. The long time scales of thermal expansion and ice sheet response to warming implied that

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[200] See A/62/644; and "Building Adaptive capacity to climate change: Policies to sustain livelihoods and fisheries" (FAO, Policy brief, 2007), at ftp://ftp.fao.org/docrep/fao/010/a1115e/a1115e00.pdf.

[201] *Human Development Report 2007/2008*, op. cit. The locals of the Carteret Islands in Papua New Guinea may be the world's first refugees to leave an island owing to rising sea levels. *Daily Mail*, 18 December 2007 (see www.dailymail.co.uk/pages/live/articles/news/worldnews.html?in_article_id=503228&in_page_id=1811.

[202] Developments in IMO relating to the reduction of air pollution from ships will be addressed in the addendum to the present report.

stabilization of greenhouse gas concentrations at or above present levels would not stabilize sea level for many centuries.

B. United Nations Framework Convention on Climate Change and Kyoto Protocol

360. The United Nations Climate Change Conference, held in Bali, from 3 to 15 December 2007, involved a complex series of meetings and events, including the thirteenth meeting of the Conference of the Parties to the United Nations Framework Convention on Climate Change, and the third meeting of the parties to the Kyoto Protocol (see also http://unfccc.int/meetings/cop_13/items/4049.php). The focus of the Conference was on long-term cooperation and the framework for addressing climate change after 2012, when the first commitment period under the Kyoto Protocol expires.

361. The Conference culminated in the adoption of the Bali Roadmap, including the Bali Action Plan, which launched a new negotiating process under the United Nations Framework Convention on Climate Change to tackle climate change, with the aim of completing this process by 2009. Under the Kyoto Protocol, outcomes included launching the Adaptation Fund, defining the scope and content of the second review of the Kyoto Protocol, and setting a deadline of 2009 for the negotiations of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol. Decisions were also made on technology transfer and reducing emissions from deforestation.[203] The fourteenth meeting of the Conference of the Parties and the fourth meeting of the Parties to the Kyoto Protocol and CMP-4 will be held in December 2008.

C. Other developments

362. Climate change has dominated the international agenda and numerous meetings have been held to address that global challenge,[204] which has been described as the defining issue of our era.[205] The Secretary-General of the United Nations convened a high-level event on climate change in September 2007 to promote negotiations on a new global agreement on climate change. The General Assembly held its annual General Debate on the theme, "Responding to climate change", and also held an informal thematic debate in February 2008, entitled "Addressing climate change: The United Nations and the world at work".

363. The Second Major Economies Meeting on Energy Security and Climate Change, held in Honolulu, Hawaii, on 30 and 31 January 2008, was convened to develop a detailed contribution in taking forward the Bali Action Plan (for further information see www.state.gov/g/oes/climate/mem). Those discussions are expected to continue at the Group of Eight (G8) Summit in July 2008, which has environment and climate change as one of its main themes (for more information see

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[203] "The Bali Roadmap": Closing statement by the President of the Conference, available from http://unfccc.int/meetings/cop_13/items/4049.php.

[204] For information on developments in various forums, see www.un.org/climatechange.

[205] Address of the Secretary-General to High-level Event on Climate Change, 24 September 2007, available from http://www.un.org/climatechange/2007highlevel/.

www.mofa.go.jp/policy/economy/summit/2008/index.html and www.env.go.jp/earth/g8/en/index.html). The GLOBE Brasilia G8+5 Legislators Forum, in February 2008, also made recommendations on biofuels and illegal logging and discussed the post-2012 climate change framework (see www.globeinternational.org).

364. Those meetings have reaffirmed the United Nations system as the appropriate multilateral framework to establish a new regime to address climate change. In order to coordinate action, the United Nations system has also developed an overview of its activities in relation to climate change, and it will undertake the development of an effective framework for greater coherence and coordination of the work of the system (see General Assembly resolution 62/8 and document A/62/644).

XI. Settlement of disputes

A. International Court of Justice

365. On 8 October 2007, the International Court of Justice rendered its Judgment in the case concerning *Territorial and Maritime Dispute between Nicaragua and Honduras in the Caribbean Sea (Nicaragua v. Honduras)*. The Court found that Honduras has sovereignty over Bobel Cay, Savanna Cay, Port Royal Cay and South Cay; decided that the starting-point of the single maritime boundary that divides the territorial sea, continental shelf and EEZs of the Republic of Nicaragua and the Republic of Honduras shall be located at a point with the coordinates 15° 00' 52" N and 83° 05' 58" W; and decided that, from this starting-point, the delimitation line continues along the bisector until it reaches the outer limit of the 12-nautical-mile territorial sea of Bobel Cay. The line then traces this territorial sea round to the south until it reaches the median line in the overlapping territorial seas of Bobel Cay, Port Royal Cay and South Cay (Honduras) and Edinburgh Cay (Nicaragua). The delimitation line continues along this median line until it reaches the territorial sea of South Cay, which for the most part does not overlap with the territorial sea of Edinburgh Cay. The line then traces the arc of the outer limit of the 12-nautical-mile territorial sea of South Cay round to the north until it again connects with the bisector, whereafter the line continues along that azimuth until it reaches the area where the rights of certain third States may be affected. The Court also found that the Parties must negotiate in good faith with a view to agreeing on the course of the delimitation line of that portion of the territorial sea located between the endpoint of the land boundary as established by the 1906 Arbitral Award and the starting-point of the single maritime boundary as determined by the Court.[206]

366. On 13 December 2007, the Court delivered its Judgment on the Preliminary Objections raised by Colombia in the case concerning *Territorial and Maritime Dispute (Nicaragua v. Colombia)*. The Court found that the 1928 Treaty between Colombia and Nicaragua had settled the matter of sovereignty over the islands of San Andrés, Providencia and Santa Catalina, that there was no extant legal dispute between the Parties on that question, and that the Court thus could not have jurisdiction over the question. The Court found that it had jurisdiction to adjudicate upon the dispute concerning sovereignty over the other maritime features claimed

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[206] ICJ press release No. 2007/23 of 8 October 2007.

by the Parties and upon the dispute concerning the maritime delimitation between the Parties.[207]

367. On 16 January 2008, Peru instituted proceedings against Chile before the Court concerning a dispute in relation, on the one hand, to "the delimitation of the boundary between the maritime zones of the two States in the Pacific Ocean, beginning at a point on the coast called Concordia, [...] the terminal point of the land boundary established pursuant to the [Treaty between Chile and Peru for the settlement of the dispute regarding Tacna and Arica, signed at Lima on 3 June 1929]", and, on the other, to the recognition in favour of Peru of a "maritime zone lying within 200 nautical miles of Peru's coast, and thus appertaining to Peru, but which Chile considers to be part of the high seas".

368. In its Application, Peru claimed that "the maritime zones between Chile and Peru have never been delimited by agreement or otherwise" and that accordingly, "the delimitation is to be determined by the Court in accordance with customary international law". Peru explained that "since the 1980s, [it] has consistently endeavoured to negotiate the various issues in dispute, but […] has constantly met a refusal from Chile to enter into negotiations". It asserted that as a result of a Note of 10 September 2004 from the Minister for Foreign Affairs of Chile addressed to the Minister for Foreign Affairs of Peru, further attempts at negotiations were no longer possible.

369. Peru requested the Court "to determine the course of the boundary between the maritime zones of the two States in accordance with international law [...] and to adjudge and declare that Peru possesses exclusive sovereign rights in the maritime area situated within the limit of 200 nautical miles from its coast but outside Chile's exclusive economic zone or continental shelf".[208]

370. Another case still pending before the Court and of relevance to the law of the sea is the *Maritime Delimitation in the Black Sea (Romania v. Ukraine)*.

B. International Tribunal for the Law of the Sea

371. On 30 November 2007, the Special Chamber of the Tribunal constituted to deal with the *Case concerning the Conservation and Sustainable Exploitation of Swordfish Stocks in the South-Eastern Pacific Ocean (Chile/European Community)* adopted an order further extending the time-limits of the proceedings for one year until 1 January 2009.[209]

C. International arbitration

372. On 17 September 2007, the Arbitral Tribunal constituted pursuant to article 287 of, and in accordance with Annex VII to, UNCLOS in the matter of an arbitration between Guyana and Suriname, rendered its Award. Having found that it had jurisdiction to consider the Parties' maritime delimitation claims, the Arbitral

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[207] ICJ press release No. 2007/30 of 13 December 2007.

[208] ICJ press release No. 2008/1 of 16 January 2008.

[209] ITLOS/Press 117 of 30 November 2007.

Tribunal established a single maritime boundary between Guyana and Suriname that differs from the boundaries claimed by each of the Parties in their pleadings.

373. The Arbitral Tribunal described the boundary in the territorial sea as follows: The delimitation line commences at Point 1, being the intersection of the low water line of the west bank of the Corentyne River and the geodesic line of N10°E which passes through Marker "B" established in 1936. The Tribunal held that the 10° Line is established between the Parties from the starting point to the 3 nm limit. Thereafter, the Tribunal arrived at a line continuing from the seaward terminus of the N10°E line at 3 nm, and drawn diagonally by the shortest distance to meet the line adopted to delimit the Parties' continental shelf and EEZ. The line adopted by the Tribunal to delimit the Parties' continental shelf and EEZ follows an unadjusted equidistance line.

374. The Arbitral Tribunal additionally held that both Guyana and Suriname violated their obligations under UNCLOS to make every effort to enter into provisional arrangements of a practical nature and not to hamper or jeopardize the reaching of a final agreement. Moreover, Suriname was found to have acted unlawfully when it expelled a drilling rig licensed by Guyana from the disputed area.[210]

XII. International cooperation and coordination

A. United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea

375. In its resolution 62/215, the General Assembly recognized the importance and contribution of the work of the Consultative Process over the past eight years (see para. 2 above).[211] Paragraphs 132 to 136 of the resolution address the outcome of the eighth meeting of the Consultative Process on the topic of marine genetic resources.

376. The ninth meeting of the Consultative Process will take place in New York from 23 to 27 June 2008 and will focus its discussions on the topic "Maritime security and safety" (see General Assembly resolution 62/215, para. 141). Following appropriate consultations with Member States, the President of the General Assembly appointed Ambassador Paul Badji (Senegal) and reappointed Lori Ridgeway (Canada) as co-chairpersons of the ninth meeting. The General Assembly will review the outcome of the ninth meeting and also the effectiveness and utility of the Consultative Process at its sixty-third session (see General Assembly resolution 60/30, para. 99).

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[210] See Permanent Court of Arbitration, at www.pca-cpa.org/showpage.asp?pag_id=1147.

[211] The Consultative Process was established by General Assembly resolution 54/33 for an initial three-year period, and extended for two three-year periods by resolutions 57/141 and 60/30.

B. Regular process for global reporting and assessment of the state of the marine environment, including socio-economic aspects

377. In its resolution 60/30, the General Assembly decided to launch the "assessment of assessments", the start-up phase of the regular process for global reporting and assessment of the state of the marine environment, including socio-economic aspects (the "regular process"), to be overseen by an Ad Hoc Steering Group and executed by a group of experts.

378. In accordance with their work programme,[212] the group of experts will conduct in each of the 21 designated regions an overview and assessment of existing oceans and coastal areas assessments, amongst others, with regard to food security, public health and safety, ecosystem health and function, and economic and social benefits in relation to global and regional ecosystem goods and services. An analysis of the current assessment landscape through the lens of five major criteria, namely: (1) scientific credibility; (2) policy relevance; (3) communication; (4) legitimacy; and (5) usefulness, will be followed by evaluations of existing assessments for the purpose of identifying best practices to inform a proposal for a framework and options for the establishment of a regular process. Experts are working in cooperation with national and regional institutions in addition to the organizations and institutions working in this area, which have been invited to participate. The group of experts has been implementing the workplan as approved by the second meeting of the Ad Hoc Steering Group[213] and is scheduled to complete the report on the "Assessment of assessments" and a "Summary for Decision Makers" in 2009.

379. At its second meeting, held in November 2007, the group of experts reviewed progress made on the state of the assessment in the 21 regions; discussed how to proceed with the outline; and how to identify best practices from the existing assessments in the regions.[214] Furthermore, the experts agreed to commission additional studies on global assessments and on supranational issues, such as climate change, marine pollution and fisheries. The Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection and WMO both proposed to contribute to such studies. Accordingly, the Joint Group of Experts task team on the "Assessment of assessments" will conduct a specific review of existing global and regional marine assessments related to marine pollution, including ship-based pollution and atmospheric input to the oceans. WMO, through the Joint IOC-WMO Technical Commission on Oceanography and Marine Meteorology, will address how integrated global observing systems could support the regular process. WMO noted that the proceedings of the Ministerial meetings of the Global Environment Outlook (see also www.unep.org/GEO/About) and the Global Earth Observation System of Systems on assessments of capacity and needs for ocean observations system could be useful to the group of experts (see A/62/66/Add.1, para. 250). It is recalled that in addition to the membership of the group of experts, which was approved by the Ad Hoc Steering Group on a "no objection" basis, UNESCO, WMO, the UNEP World

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[212] Report of the first meeting of the Group of Experts, held in March 2007, document GRAME/GOE/1/7.

[213] Report of the second meeting of the Ad Hoc Steering Group, held in June 2007, document UNGA 60/30 – A of A – AHSG/2.

[214] Group of Experts report of the second meeting, document UNGA 60/30 Regular Process/GOE/2/3, available at www.unep.org/dewa/assessments/EcoSystems/water/MarineAssessment/meetings.asp.

Conservation Monitoring Centre and the Joint Group of Experts have observer status in the Group (see A/61/GRAME/AHSG/1, annex II, para. 14).

380. The third meetings of the Group of Experts and of the Ad Hoc Steering Group will be held in April and June 2008, respectively.[215]

C. Oceans and Coastal Areas Network (UN-Oceans)

381. UN-Oceans, an inter-agency coordination mechanism on ocean and coastal issues, was established in 2003 by the United Nations System Chief Executives Board for Coordination. Since its fifth meeting in May 2007, two more organizations of the United Nations system, UNIDO and the World Tourism Organization, have joined.

382. Members of UN-Oceans engage in cooperative activities through ad hoc, time-bound task forces set up under the guidelines of the Chief Executives Board's High-level Committee on Programmes. Two task forces are currently in operation. The Task Force on Biodiversity in Marine Areas Beyond National Jurisdiction, led by the Convention on Biological Diversity secretariat and the Division for Ocean Affairs and the Law of the Sea, coordinates inputs to various United Nations and other international processes dealing with biodiversity beyond areas of national jurisdiction, including the General Assembly Working Group (see para. 3 above) and the Conference of the Parties to the Convention on Biological Diversity. Current activities include providing inputs towards the development of a webpage on marine biodiversity beyond areas of national jurisdiction.[216] The Task Force on Marine Protected Areas and Other Area-based Management Tools, co-led by the Convention secretariat, UNESCO/IOC, FAO and UNEP, with the participation of IMO, UNDP, the World Bank, the International Seabed Authority and the Division, is preparing a comparative analysis of activities dealing with MPAs, integrated coastal area management, and marine spatial planning carried out or planned by UN-Oceans members. That review would provide opportunities for mutual assistance and synergies among the members in the implementation of their respective programme activities.

383. In order to achieve system-wide coherence in the areas of development, humanitarian assistance and the environment, UN-Oceans members are preparing an inventory of their activities in the relevant pilot countries (Albania, Cape Verde, Mozambique, Pakistan, United Republic of Tanzania, Uruguay and Viet Nam) as well as other common country programming processes. This would allow interested agencies, programmes and funds to better plan for more coordinated action to address coastal and marine issues at the country level.

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[215] Contributions from UNEP and UNESCO/IOC.

[216] The webpage will be accessible from the website of the Division at www.un.org/depts/los.

XIII. Capacity-building activities of the Division for Ocean Affairs and the Law of the Sea

384. The General Assembly resolutions on oceans and the law of the sea continue to reflect the growing importance that States attribute to capacity-building activities in the field of ocean affairs and the law of the sea. The Division has continued to manage fellowship programmes, provide advisory services, administer trust funds, organize training courses, briefings and prepare special studies. With regard to the delineation of the outer limits of the continental shelf, the Division continued to deliver training courses, at the subregional level, to assist developing States in the preparation of submissions to the Commission and has identified a new mechanism for the facilitation of the access of developing States to the trust fund for the purpose of facilitating the preparation of submissions to the Commission (see para. 398 below). The Division has been processing an increasing amount of requests for financial assistance from this trust fund.

385. The Division is finalizing a training manual to be utilized for the delivery of regional courses on "Development and implementation of ecosystem approaches to ocean management" (see para. 394 below).

A. Briefings for General Assembly delegates

386. A briefing on "Developments in ocean affairs and the law of the sea" was held at Headquarters on 17 October 2007, on the occasion of the twenty-fifth anniversary of the opening for signature of UNCLOS. It was organized, for the sixth consecutive year, by the Division and the United Nations Institute for Training and Research. The briefing was attended by more than 45 participants and received very positive feedback. On the same date, the Division organized, in collaboration with UNU, another event to mark the twenty-fifth anniversary — a forum entitled "Twenty-five years since the adoption of UNCLOS: lessons learned and the way forward". Hasjim Djalal (Chairman of the Finance Committee of the International Seabed Authority) and Myron H. Nordquist (Director of the Center for National Security Law, Center for Oceans Law and Policy, University of Virginia School of Law) delivered keynote speeches aimed at assessing the legacy of the Convention and its future perspectives at the event, which was moderated by David Freestone, Deputy General Counsel, Advisory Services Legal Vice Presidency for the World Bank.

387. On 3 March 2008, the Division and the Institute organized a briefing focused on "Marine biological diversity beyond areas under national jurisdiction" to assist delegations in their preparations for the meeting of the General Assembly Working Group (see para. 3 above). The briefing, which featured a scientific presentation by Peter A. Rona, Professor of Marine Geology and Geophysics from the Institute of Marine and Coastal Science, Rutgers University, was attended by more than 50 participants and received very positive feedback.

B. Hamilton Shirley Amerasinghe Fellowship Programme

388. The Hamilton Shirley Amerasinghe Memorial Fellowship is now in its twenty-third year of operation. The twenty-second award was offered to a candidate from Madagascar. The award was made by the Under-Secretary-General for Legal

Affairs, the Legal Counsel of the United Nations, on the basis of the recommendation of a High-level Advisory Panel. The Fellowship has gained wide acclaim for its academic contribution to the overall understanding and implementation of the Convention. The Fellows pursue postgraduate-level research and training in the law of the sea, its implementation and related marine affairs in order to acquire additional knowledge of the Convention and to promote its wider appreciation and application. Fellows are required to spend a period of six months carrying out supervised research/study at a participating university of their choice, followed by three months of practical training at the Division, and depending on the topic of their choice, at other United Nations bodies, the Tribunal being one of them (see the website of the Division at www.un.org/Depts/los).

389. The Fellowship operates under the framework of the United Nations Programme of Assistance in the Teaching, Study, Dissemination and Wider Appreciation of International Law with a voluntary trust fund established for that purpose. The component of the fund specifically earmarked for the Hamilton Shirley Amerasinghe Fellowship is almost depleted. The General Assembly, in its resolution 62/215, urged Member States and others in a position to do so to contribute to the further development of the Fellowship. In that regard, a note verbale was sent to States drawing the attention of Member States to resolution 62/215. In 2007/2008, contributions were received from Cyprus, Ireland, Monaco and the United Kingdom.

C. United Nations-Nippon Foundation of Japan Fellowship Programme

390. Now in its fourth year of operation, the Programme has awarded 40 Fellowships to Government officials and other mid-level professionals to undertake advanced academic research in the field of ocean affairs and the law of the sea or related disciplines.

391. The ten 2007-2008 Fellows (from Antigua and Barbuda, Benin, Brazil, Cameroon, Colombia, Comoros, Kenya, Indonesia, Philippines and Thailand) are completing the final phase with the Division; and the ten 2008-2009 Fellows (from Cameroon, Ghana, Guatemala, India, Islamic Republic of Iran, Mozambique, Syrian Arab Republic, Thailand and Turkey) are currently in the process of commencing the first-phase placements with the academic institutions participating in the Programme.

392. The Programme has also continued to negotiate the participation of additional internationally recognized academic institutions to host Fellows, including in the fields of marine sciences. Currently, the Programme counts some 32 institutions in 16 States as partners.

393. Further information, including the past Fellows' research papers, application files and an up-to-date list of participating institutions, is available on the website of the Fellowship (www.un.org/depts/nippon).

D. Training courses

1. TRAIN-SEA-COAST Programme

394. The Division continued its efforts to promote the delivery of training courses available in the TRAIN-SEA-COAST Programme (see www.un.org/Depts/los/tsc_new/TSCindex.htm). In that regard, arrangements are under way for the delivery in 2008 of the course on "Nutrient pollutants from agriculture", which was developed by the Programme's Black Sea course development unit in Ankara, in response to the need for strengthening and creating regional capacities for managing the Black Sea ecosystem. All countries bordering the Black Sea will be invited to the first delivery of the course. In addition, the Division has begun consultations with the South Asia Cooperative Environment Programme with the view to offering a second delivery of its training on "Development, implementation and management of marine protected areas" (see A/62/66, para. 353). Discussions with the UNEP Regional Seas Programme are also in progress for the first delivery in the East African region of the course on ecosystem approaches to ocean management (see para. 385 above).

395. The Global Programme of Action continued to deliver, in partnership with the UNESCO Institute for Water Education (see A/61/63/Add.1, para. 183), its TRAIN-SEA-COAST course on "Improving municipal wastewater management in coastal cities". Courses were delivered in Mozambique, Suriname and the Syrian Arab Republic. Furthermore, UNEP/Global Programme of Action has developed a web-based self-study management tutorial and a compendium of technologies, which offers a description of several technologies for wastewater treatment suitable for small island developing States and low-income coastal countries.[113]

2. Training course to promote compliance with article 76 of the Convention

396. After concluding a first round of four training courses at the regional level (see A/60/63, paras. 47-49; A/60/63/Add.2, paras. 109-112; A/61/63, paras. 48-51 and A/61/63/Add.1, paras. 180-181), and starting its training activities at the subregional level with two courses held in Brunei Darussalam from 12 to 16 February 2007 (see A/62/66, para. 352) and in South Africa from 13 to 17 August 2007 (see A/62/66/Add.1, para. 270), the Division organized, in collaboration with the Government of Trinidad and Tobago and with Grid-Arendal and the Federal Institute for Geosciences and Natural Resources of Germany, a training course in Port of Spain, Trinidad and Tobago, from 14 to 18 January 2008. The course was successfully completed by 29 administrative staff from the Bahamas, Barbados, Costa Rica, Cuba, Guyana, Suriname and Trinidad and Tobago (see also para. 397 below).

E. Trust Funds

1. Commission on the Limits of the Continental Shelf

397. *Voluntary trust fund for the purpose of facilitating the preparation of submissions to the Commission on the Limits of the Continental Shelf for developing States, in particular the least developed countries and small island developing States, and compliance with article 76 of the United Nations Convention on the Law of the Sea.* Sixteen participants received assistance from this trust fund to attend the

training course referred to in paragraph 396 above. The Independent Panel of Experts, which assists the Division in the examination of applications to the trust fund, met in June and December 2007.[217] During the second half of 2007, Ireland made a contribution of $58,584[218] to the trust fund. According to the provisional statement of accounts, the expenditure for 2007 (including programme support costs) was approximately $60,311 and the fund balance at the end of December 2007 was approximately $2,397,823.

398. In order to facilitate the access of developing States to the trust fund, payment from this fund may now also be effected by way of a grant in cases where this is requested. Grants will enable the United Nations to provide assistance to States from this trust fund without Governments first having to make financial outlays and then being reimbursed by the United Nations.

399. On 21 and 22 February 2008, the Division organized briefings for delegates on the terms of reference, guidelines and rules of this trust fund as well as procedures related to the preparation, submission and processing of applications. The briefings were attended by 20 representatives from developing countries that may seek financial support for activities related to the preparation of submissions to the Commission.

400. *Voluntary trust fund for the purpose of defraying the cost of participation of the members of the Commission on the Limits of the Continental Shelf from developing States in the meetings of the Commission.* During the second half of 2007, contributions to this trust fund were received from Iceland ($100,000) and Mexico ($7,500). According to the provisional statement of accounts, the expenditure for 2007 (including programme support costs) was approximately $84,854. The fund balance at the end of December 2007 was estimated to be $611,158.

2. Voluntary trust fund for the purpose of assisting developing countries, in particular least developed countries, small island developing States and landlocked developing States, in attending meetings of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea

401. In its resolution 62/215, the General Assembly decided to broaden the assistance that is available from this trust fund established by resolution 55/7. In the future, those representatives from developing countries who are invited by the co-chairpersons to make presentations during the meetings of the Consultative Process shall receive priority consideration in the disbursement of funds from the voluntary trust fund in order to cover the costs of their travel, and shall also be eligible to receive daily subsistence allowance subject to the availability of funds

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[217] The members of the Independent Panel of Experts, which assisted the Division in the examination of applications to the trust fund in 2007, were as follows: the Permanent Representatives of Mexico, Norway, Papua New Guinea and Senegal, the Deputy Permanent Representatives of Japan and the Russian Federation; and the Law of the Sea Director, Department of Foreign Affairs of Ireland. Since then, the member of the panel from Ireland resigned and the Division will appoint a replacement in accordance with the terms of reference, guidelines and rules of the trust fund as set out in annex II to General Assembly resolution 55/7 and the annex to General Assembly resolution 58/240.

[218] In 2005, Ireland pledged 120,000 euros (€) to this trust fund to be paid in three annual instalments (see A/62/66, para. 355). That sum represented the third and final annual instalment.

after the travel costs of all other representatives eligible to receive assistance pursuant to General Assembly resolution 55/7 are covered. That decision is intended to facilitate the broader participation of representatives of developing countries invited to the meeting as panellists, but its effective implementation will depend completely on the contributions of States to the fund.

402. According to the provisional accounts for the period ending 31 December 2007, the trust fund balance was approximately $42,474. No contributions have been made to the voluntary trust fund since 2004, and it is unlikely that the trust fund will be able to satisfy all requests for assistance to attend the ninth meeting of the Consultative Process in 2008 at the current level of funding. The General Assembly in its resolution 62/215 expressed its serious concern regarding the insufficient resources available in the trust fund and urged States to make additional contributions. A note verbale was sent by the Division to Member States calling their attention to resolution 62/215.

3. Voluntary trust fund for the International Tribunal for the Law of the Sea

403. There have been no applications to the trust fund since the application of Guinea-Bissau in 2004. During the second half of 2007, a contribution of $14,148 was made by Finland. As of December 2007, according to the provisional statement of accounts the fund balance was approximately $107,447.

XIV. Conclusions

404. The present report once more demonstrates the crucial need for international cooperation, as also provided for in UNCLOS and other legal instruments, and provides an overview of the contribution of the bodies established by the Convention and other relevant international organizations to that process. Of particular importance for the eighteenth Meeting of States Parties to the Convention will be the identification, as a matter of priority, of appropriate solutions regarding the workload of the Commission, and the ability of developing States to fulfil the requirements of the Convention, taking into account its previous decision at the eleventh Meeting (SPLOS/72), while ensuring the integrity of the Convention.

405. International cooperation is also of critical importance for enhancing maritime security and safety, which will be of special interest to the ninth meeting of the Consultative Process. Many of the challenges and threats to maritime security and safety recognize no national boundaries, are interconnected, and can only be effectively addressed through the concerted efforts of all States. Equally important is the need to ensure that any measures taken to meet these challenges and threats are consistent with international law and that concerns relating to the potential impact of those measures, in particular on individuals, are effectively addressed. The report is intended to facilitate the consideration of all these issues from a comprehensive and integrated perspective and the identification of cross-cutting issues. It highlights the need to enhance the effectiveness of the international legal framework and its implementation, and suggests areas where cooperation, coordination and capacity-building could be strengthened.

406. The sustainable use of marine resources and rational utilization of the oceans and seas also continue to require sustained international cooperation, including in the area of capacity-building. Priority attention needs to be given to the management

of human activities that adversely impact marine ecosystems, including their cumulative effects, taking into account current and potential adverse effects of climate change. Marine science programmes and technology play an important role in that regard and require support. Current initiatives to improve fisheries governance equally require strong support. At the regional level, continued cooperation is essential in order to deal with global challenges to the marine environment, in particular in taking measures to adapt to the adverse effects of anthropogenic climate change.